

Workbench

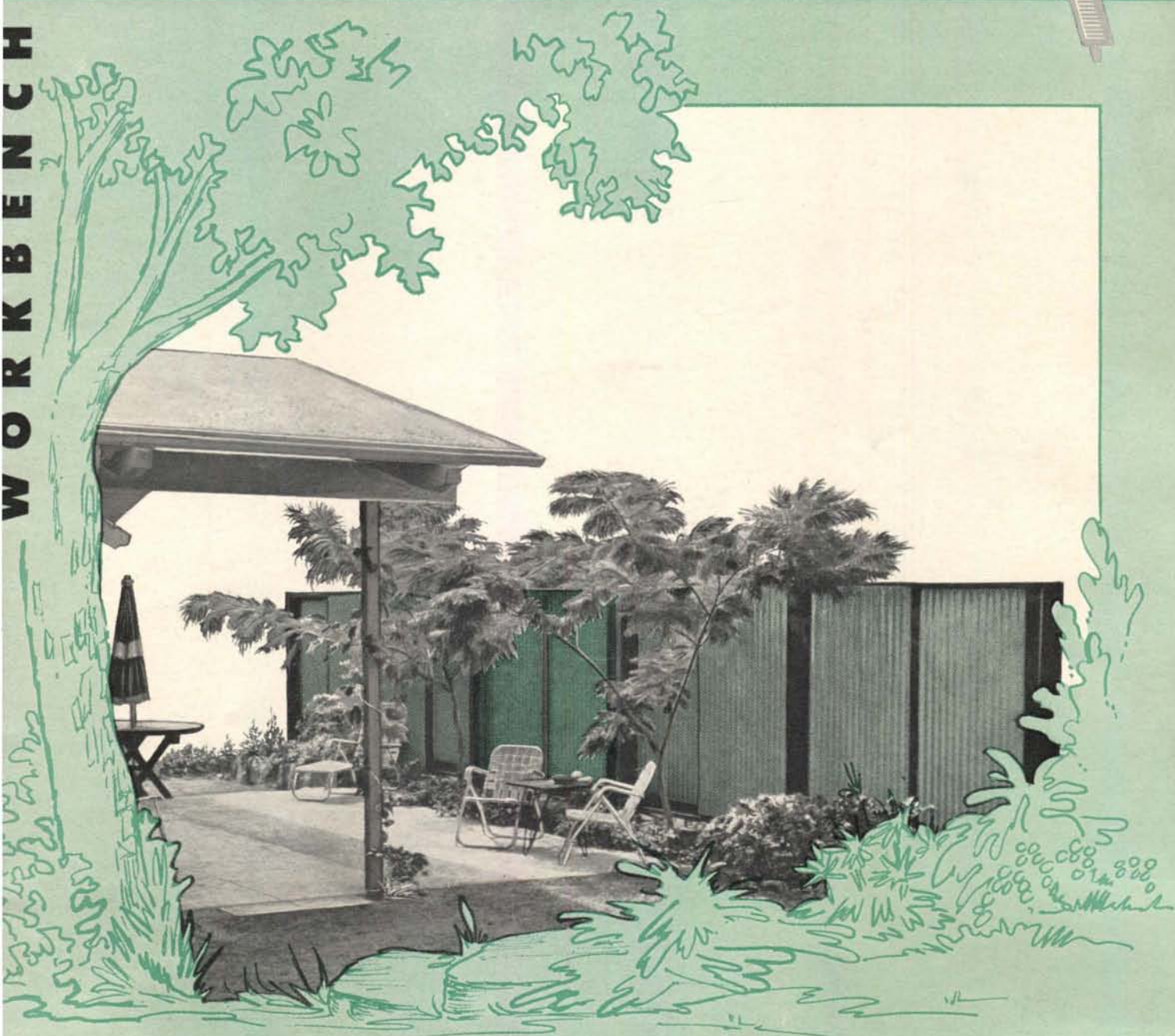
JULY
AUGUST
1961



IMPACT WRENCH



WORKBENCH



Aluminum Patio Wall

PLASTIC FENCE ▲ 60-MINUTE PICNIC TABLE ▲ BARREL BARBECUE
LANDSCAPING DO-IT-YOURSELF SWIMMING POOLS ▲ METAL SPINNING

New

BETTER

Bigger

The Surprise Packed
WORKBASKET
Brings YOU
EXTRA Benefits Monthly
HOT IRON TRANSFERS
FOUR Times A Year!

MAIL YOUR ORDER
TODAY
AT THIS LOW RATE

ONLY \$1.00

The WORKBASKET, Dept. 507
543 Westport Rd.
Kansas City 11, Mo.

☐ I'm enclosing \$1.00 to receive The WORKBASKET
for 12 months.

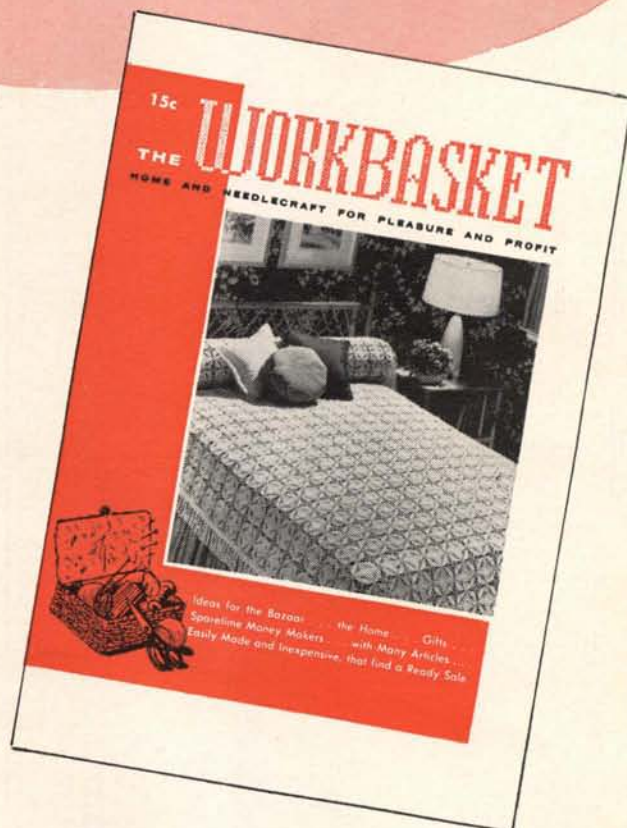
Name _____

Address _____

City _____ Zone _____

State _____

☐ Check here if you now take The WORKBASKET
(Offer good in U.S.A. and possessions only)



Just as a leader in its field should, The WORKBASKET Magazine keeps improving itself. The redesigned cover is but one step forward in making its appearance more pleasing. Inside, you'll find a great many carefully edited directions for items to crochet, knit and tat. There is always a generous amount of information on quilting, embroidery, rug making, needlepoint, huck weaving and other time-tested needlecrafts.

The really big BONUS in your new WORKBASKET is the addition of hot iron transfer designs which come to you FOUR TIMES A YEAR. These exquisite, original creations can be used over and over again. And what a splendid source of ideas for gifts, the home, and bazaars.

But more than needlecraft, pages in every issue are loaded with ways to make your life lovelier . . . to save you time . . . to save you money. Then there is the expanded section on gardening, and monthly features to help you plan nutritious, delicious food for your family.

Yes indeed, the New WORKBASKET is truly a boon to homemaking. Why don't you see how it can help you now . . . at this low money-saving rate. Fill out and clip this coupon, send it with just \$1.00 for 12 issues of The WORKBASKET. (You'll be saving 50c from the regular \$1.50 subscription rate or 80c from the single copy rate for 12 issues). Incidentally your satisfaction is guaranteed.

THIS "Christmas Money" Coupon

WILL BRING YOU \$2.75 WORTH OF

GREETING CARDS

for Only 25¢

THIS COUPON GOOD FOR:

1 \$2.75 Worth of Greeting Cards for Only 25¢

for Christmas and All Occasions

2 Full details on how to earn, in spare time, \$50 to \$250 between now and Christmas

HARRY DOEHLA & ASSOCIATES
Studio W167

(Address any one of these three offices) NASHUA, N.H.
ST. LOUIS 1, MO.
PALO ALTO, CALIF.

As a Special Introductory Offer, please send me the GIANT \$2.75 assortment of Christmas and All Occasion Greeting Cards (98 pieces). I enclose only 25¢ as payment in full. Also send samples of your newest and most popular Christmas Card assortments on approval, and details of the famous Doebla "Extra Money" Plan. (Offer Limited to One to a Family.)

Name..... (Please Print Clearly)

Address.....

City..... Zone..... State.....

☐ Check here for Special FUND-RAISING Plan for church, school, club or organization. Please write name of organization:.....

JUST IMAGINE! The valuable coupon above is good for the giant 98-piece boxed assortment of Christmas and All Occasion greeting cards shown here (regular price \$2.75) — if sent with only 25¢ to help cover packing and mailing costs. In addition, it will also bring details on how you can earn \$50 to \$250 between now and Christmas in your spare time.

Why do we make this Special Introductory Offer? Because we want you to see how easy and pleasant it is to earn "Christmas money" with the wonderful Doebla "Extra Money" Plan. No experience needed.

To help you get started, with your giant box of cards we will also send you several other popular assortments on approval. Just SHOW these beautiful cards to friends and neighbors. They get real bargains. And you make up to 60¢ on every box they order — even more on certain gift and novelty items. Soon you have \$50 to \$250 to spend as you please! If friends don't snap up these bargains, send them back at our expense and pay nothing!

Mail The Above Coupon At Once

Mail valuable "Christmas Money" Coupon at top of page now — with ONLY 25¢ for your big \$2.75 Giant box of cards. It's yours to KEEP whether or not you do anything further about the Doebla "Extra Money" Plan! Address: Harry Doebla and Associates, Studio W167, Nashua, N.H., or St. Louis 1, Mo., or Palo Alto, Calif. (Address office nearest you.)

One of These Nation-Wide Associates Will Give You Prompt Service in Your Area:

Boulevard Art Publishers
Chicago 4, Ill.

Iva E. Brundage & Sons
Detroit 4, Mich.

Capitol Card Company, Inc.
New Orleans 12, La.

Columbia Card Co., Ltd.
Dallas 1, Tex.

Harry Doebla Company
Nashua, N.H. & Palo Alto, Calif.

Greetings Unlimited
St. Paul & Minneapolis, Minn.

Hye-Quality Card Co., Inc.
Kansas City 6, Mo.

Imperial Greeting Card Co.
Los Angeles 12, Calif.

Midwest Card Co.
St. Louis 1, Mo.

Western States Card Co.
Denver 11, Colo.



Yes! You Get This \$2.75 98-Piece Assortment for only 25¢

Imagine! ... you get 98 useful items in this big box. It's a ready for every greeting card need. Included in this Giant Christmas and All Occasion Box Assortment are generous quantities of cards for:

Christmas Birthdays "Get Well" Sympathy New Babies Thank You Gift Cards Anniversaries Children's Toyards Correspondence Notes, etc.

DO-IT-YOURSELF IDEAS FOR FAMILY "Living" IMPROVEMENT



Need more "Living" room? You can close-in your porch, breezeway, or unfinished open garage deck with DeVac "GlassWalls" at low-cost. "GlassWalls" are floor-to-ceiling porch enclosure windows that need no studding in most cases; can be installed in only hours with normal carpenter's tools. You and your family will enjoy more livable space with year 'round comfort. DeVac "GlassWalls" give complete ventilation control at less cost per square foot than other construction methods. Your new room can be an open porch or completely closed against showers or winter winds.



Inside windows stuck, unable to open? Sash ropes frayed, or window rotted? You can install inexpensive DeVac inside replacement windows from inside the house in less than an hour per window because each and every window is specially manufactured to fit your window sizes. All you do is take two simple measurements per window. Everyone will be happier with lifetime aluminum windows that are always easy to operate, allow ventilation control, and cut back on the expense of heating or air conditioning.

FIND YOUR DEVAC DEALER LISTED IN THE "YELLOW PAGES" UNDER PORCH ENCLOSURES OR WINDOWS

*A new outlook on Family Living
through DeVAC windows*

DeVac, Inc.

5900 Wayzata Boulevard, Minneapolis 16, Minnesota

Please mail me free information about the:

- ☐ DeVac GlassWalls ☐ I will do the work myself,
☐ Replacement windows please include installation
☐ I plan to remodel information and
☐ I plan to build prices

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

TELEPHONE NUMBER _____

WORKBENCH volume 17 number 4

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LETTERS TO THE EDITOR

**EXCITING, CHALLENGING AND MONEY-
SAVING** is the series of articles that
start in our next issue. We will
show step-by-step how to build
cabinets and counters for every
type kitchen. Included will be
units to accommodate built-in
ranges, ovens and dishwashers.
We have had all the units built,
so there is no theory involved;
only practical carpentry. Instal-
lation of hardware, construction
of drawers, applying plastic-lami-
nates to counter tops; every phase
of kitchen-cabinet construction
will be covered.

All you home craftsmen who
have been considering remodeling
your kitchen; here is your chance
to learn the latest in methods, ma-
terials and appliances.

Dear Sirs:

In the last (March-April) issue of
WORKBENCH there was a Grand-
father's clock. I wanted to make
such a clock, so in 1942 I retired
and sent for some information. They
sent a catalog showing a kit of parts.
I preferred to make my own design,
and they had no parts of cedar. I
have made three of the cabinets, as
shown in the photo, one for each of
my children. I got a plan of the
works and made two wooden and
three metal movements. My clock is
6-ft. 11 in. tall, the hands are cut
from bone, the numerals are inlaid
of sapwood of cedar.

L. H. Dudley, Santa Rosa, Calif.



Dear Mr. Dudley:

You definitely are a designer with
individuality. It is unfortunate that we
cannot show your cedar cabinet in color,
as per the photo you sent.

We have seen wooden movements
made, and even metal ones. However,
the wood quickly wore away, and there
was a wearing problem even with metal.
We believe the best bet is to use an
imported works, the same type used in
clocks owned by our colonial ancestors.
Movements in these clocks have run
accurately for over a hundred years in
many cases.

We are in the process of having a
man build a Grandfather clock, and
will show how such a project can be
built from kit form, from blueprints, or
even from your own design. All parts
are readily available from two of our
advertisers, the Byers Co., and the
Mason and Sullivan Co.



Dear Editor:

Picked up an issue of **WORK-
BENCH** and saw the article on the
Wooden Indian. Do some jack-knife
carving so I carved Princess Lulu.
You asked for snapshots, so here is
one of my work.

Tyler T. Nash, Lanesboro, Mass.

Dear Mr. Nash:

Thank you for the snapshot of your
version of Princess Lulu. For a "jack-
knife" carving it looks very professional
indeed. We have some more wood-carv-
ing stories coming up, which I am sure
that you, and other carvers will enjoy.

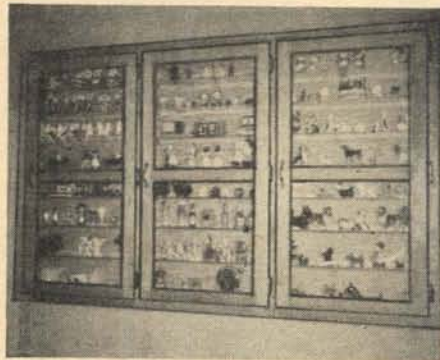
Dear Sir:

I would like to say that I think
WORKBENCH is the best of its kind,
and I enjoy it very much. I have a
Delta 9-in. saw, jointer, sander, drill
press, band saw, scroll saw, lathe
and several other power tools and
numerous hand tools.

Woodworking is my hobby when
off the job. Enclosed is a photo of
my last project. It is 70 in. long,
45 in. high and 6 in. deep. It is made
from 1-in. wild cherry. I finished it
with linseed oil and quality paste
wax. We use it for a collection of
salt and pepper shakers. The case

has glass shelves and the hardware
is hammered brass. We are always
on the lookout for unusual types of
shakers.

Harold R. Murphy, Chief of Police,
Phelps, N. Y.



Dear Chief Murphy:

Your workmanship is excellent, and
the collection seems quite extensive. If
any readers have unusual shakers they
would like to donate to this collection,
we will forward the chief's address.

Gentlemen:

A few issues back you had a plan
for an expandable dining-room table,
which was the answer to a problem
for us. We needed a table to accom-
modate a large group about three
times a year, but one that would not
take up all the room in the dining
area the rest of the year. I made
the table 42 in. wide, instead of the
36 in. you showed, but had no prob-
lems. I also used piano hinges, in-
stead of table hinges. We use one
table in the dining area where it
takes up a width of only 11 in., while
the other table is used as a utility
table in another room until the
crowd comes.

Fremont Loeffel, Supervisor, Re-
habilitation Div., Board for Voca-
tional Education, Wilmington, Del.

Dear Mr. Loeffel:

We are delighted you had such suc-
cess with the expandable table. Quite
a number of readers have built the table
and written to us about it. The article
on folding chairs to go with the table
(May-June, 1961) was a direct result of
the interest shown in this table.

CHAIR-HARDWARE SOURCE

Folding, locking leg brackets for the
folding chair in the May-June issue can
be obtained from Albert Constantine
and Sons, 2050 Eastchester Rd., N.Y.
61. Catalog No. 14WP2. Set of 4 with
screws, \$3.95 plus postage for 1 lb. 8
oz. from New York City.

Jay W. Hedden

Jay W. Hedden, Editor

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X-PANDOTITE®

the white mortar-like cement
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And—for casting plaques, bric-a-brac . . . many other types of hobby work. May be colored. Non-toxic.

And—for thousands of uses, big or small, indoors and outdoors.

What's more, X-Pandotite does the job better. Here's why —

X-Pandotite differs from all other cements: It does not shrink, crack or dry out, but expands on setting . . . forcing its way into every fibre, pore or crack—in tile, cement, wood, plaster and numerous other materials. What's more, the seal is leak-proof, vibration-proof, shrink-proof . . . unaffected by steam, alkali and other ordinary corrosives. And—remember, X-Pandotite is economical . . . a little goes a long way—and the repairs are permanent. Ask for it today at your local dealer, or—

SEND THIS COUPON FOR A POSTPAID WORKING SAMPLE TODAY . . . Dept. 13

Yes, send me a full ½ pound sample of X-Pandotite, the easy-to-use, permanent, crack-proof and shrink-proof white mortar-like cement that expands as it sets . . . I am enclosing my check or money order for \$1.00.

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Street or RFD _____
City _____ Zone _____ State _____

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2447 Plans, Patterns. World's greatest selection, things to DO and MAKE for FUN, PROFIT. Make doll houses, Wooden wheel clocks, Early American knickknacks, Aluminum trays, Electroplate baby shoes, Make Nativity scene, Desks, Grow dwarf trees. Make Mosaics, Kites, Birdhouses, Magazine racks, Gadgets for smokers, Garages, Candles, Action windmills, Gun racks, Toys, Silhouettes, Lawn and garden novelties. Tables, Do lettering. Wood finishing, Copper tooling. Make whatnot shelves. Wire figures, Book ends, Religious mottoes, Flower boxes, Circus pinups, Inlay pictures, Home bars, Outdoor holiday displays, Serving trays, Clocks, Smart Lamps, Costume Jewelry, Lawn furniture, Novelties, Home improvements . . . many others. Rush postcard with name, address TODAY!

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Easy to do yourself. Genuine Strand Cane. Woven Cane Webbing for Chairs with Groove, Ash Splints, Flag Rush. Catalog Dime. Instructions 25c. Complete Seat Weaving Book, \$1.15. Raffia. Basket Reed. Basketry Book, 75c.

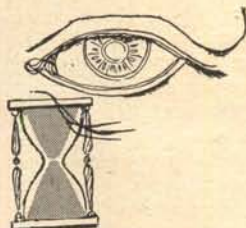
FOGARTY CANER, Dept. 3, Troy, N. Y.

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EXPERTLY DUPLICATE Turnings, Carvings, Etc.

right on your own lathe accurately & fast. All from easy to make templates or originals. Now available is our NEW off-the-lathe No. 4 CARVER MODEL shown here duplicating a valuable mahogany bust from an inexpensive ceramic one! OTHERS ARE MAKING MONEY WITH TURN-O-CARVE TOOLS! So can YOU! FREE literature. Write TO-DAY!

TURN-O-CARVE TOOL, INC.
4240 Altadena Ave., Dept. W-761
San Diego 15, Calif.



keeping up with craft and home products

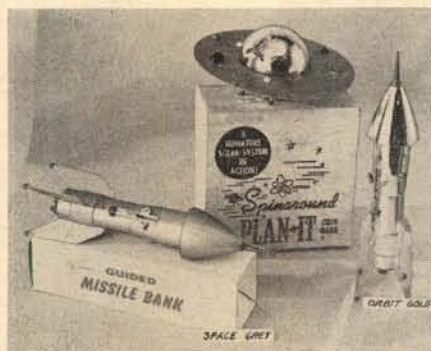
In communicating with companies whose products are described in this department, please mention WORKBENCH.

Electric Can Opener



DESPITE ITS LOW COST, this can opener is ruggedly built and extremely attractive. Our personal tests showed it would handle cans of any size and shape. Can is slipped in place, handle pulled down and motor starts. When top of can is completely cut, motor stops, lid is held by magnet. Complete with wall-mounting hardware and guaranty \$10.95. Counter top stand available at \$2 additional. Bundy Sales Co., Mount Tom Road, Pawling, N. Y.

Space-Age Banks



COIN FITTED ON side of missile is "fired" into nose cone, coin fitted in sun slot of model of solar system drops into sun when model is spun on ball bearings. Both banks weigh 1¼ lb. "Planet" bank is \$2.98 plus 60 cents postage and handling, "Guided Missile" in gold finish is the same price. Missile bank in gray is \$2.69 plus 60 cents handling and postage. Made in U.S.A., available from E. M. Walker, 2651 Hendrie, Dept 2-P, Detroit 31, Mich.

Paint-Remover Kit



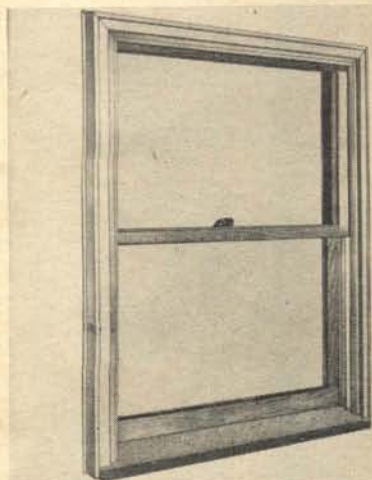
PACKAGED LIKE CAKE MIX, this kit for the removal of paint or varnish contains a non-flammable, water-rinsable remover, a high-powered detergent to speed emulsifying action and steel-wool pads for clean up. Kit is said to work four times faster than other stripping processes. Strip Pak is available at paint and building-supply dealers who handle Savogran Co. Products.

Free Electronics Catalog



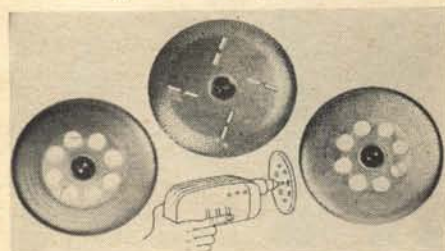
CONTAINING OVER 320 pages, this catalog is the largest and most comprehensive ever offered in the 40-year history of this company. Write for your free catalog No. 610 to Lafayette Radio Electronics Corp. 165-08 Liberty Ave., Jamaica 33, N. Y.

Wood-Metal Window



THE INSULATING QUALITIES of wood and the maintenance-free properties of aluminum are combined in this unusual window. The outside frame is made of Reynolds Aluminum, the sash is made of wood. For easy cleaning and painting, both upper and lower sash are removable. For more information write to V. E. Anderson Mfg. Co., Bradenton, Fla.

Rasp Sanding Plates



COARSE AND MEDIUM, as well as a combination "grit" are available in these sanding plates that take the place of sanding disks. Simply chuck in any 1/4-in. drill motor. Each \$1.98, all three for \$5.75. Alexander Sales Corp., Dept. WB, 140 Marbledale Rd., Tuckahoe, N. Y.

Danish Oil Finish



NO HAND RUBBING is required for this finish that can be applied on unfinished units made of walnut, birch, teak, oak, cherry and similar woods. Quart container now \$3.95. Watco-Dennis Corp., Dept. 112, 1756-22nd St., Santa Monica, Calif.

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PRACTICAL UP-TO-DATE COURSE!
ONLY \$5.95 COMPLETE—Teaches you the professional "secrets." How to pick locks, de-code, make masterkeys, install and service key systems, etc. Step-by-step detailed, illustrated instructions make every operation crystal clear. Money-making information for carpenters, mechanics, hardware dealers, gunsmiths, cycle shops, maintenance men, etc. 53 lessons! Only \$5.95 postpaid—or COD plus postage. Satisfaction or refund guaranteed. Order "Locksmithing" today! Nelson-Hall Co., 325 W. Jackson Blvd., Dept. GN-76, Chicago 6, Ill.



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Beautiful!
with **SHELLAC**
in Five Easy Steps

Still the classic finish...choice of master wood craftsmen for centuries...Shellac gives the most beautiful, most durable finish, enhances the natural wood grain beauty of the pieces you finish.

And, it's safe to use, easy to apply, and quick drying. Finish the job in just one day. Follow these five steps for the furniture finish beautiful.

1. If unfinished furniture has thin protective wax film, remove with mineral spirits and other suitable remover.
2. Carefully sand smooth all surfaces, using fine sandpaper. Always work with the grain. Wipe off thoroughly with a cloth.
3. Where surface is to be stained, first apply a very thin coat of Shellac, a 1-lb. cut. Allow to dry one hour; sand lightly with sandpaper or fine steel wool. Wipe with a dry cloth. Then apply stain.

If a pickled finish on open grain wood is desired, rub with a light coat of moist zinc white instead of stain. Wipe off excess with a dry cloth, allow to dry. (If the furniture is to be finished in the natural tone of the wood, skip Step 3).

ished in the natural tone of the wood, skip Step 3).

4. Apply a coat of 3-lb. Shellac. Work with a full brush, following grain of wood. Since shellac dries quickly, apply with a minimum of brushing. Allow three hours for drying. Sand lightly and dust.

5. Apply second coat of 3-lb. cut Shellac. Allow to dry for three hours before using.

Note: If a waxed finish is desired, apply a good paste wax after allowing 48 hours drying. Paste wax increases the water resistance of any finish. For a flat finish, omit wax and rub surface with fine pumice and rubbing oil.

beauty sealed

with **Shellac**

MAIL COUPON FOR FREE HOW TO FINISH IDEAS

Shellac Information Bureau,
Dept. 5, 51 Pine St., New York 5, N. Y.

- ☐ "Shellac, How to use it" on floors, furniture, wood paneling
- ☐ "Short Cuts..."—a fascinating collection of useful ideas.

Name _____

Address _____

REWARD \$2,000.00 FOR THIS COIN!

\$500,000.00 Search for Rare Coins!



Stop spending pocket change worth hundreds of dollars! NEW LARGE illustrated catalogue lists the actual price we will pay for all United States Coins. Certain Half Cent Coins are worth up to \$3,500.00 for Canadian Coins. Send only \$1.00 for this valuable coin book. It may reward you many thousands of dollars. Send only \$1 to

Best Values Co., Coin Dept. 58
403 Market Street Newark, N. J.



SMILING CLOWN

18" tall. Sew by hand or machine, and stuff. Gay plastic face and cut material supplied: silk, rayon and satin in different colors. No two dolls alike. Sells for \$1.98. Single sample \$1.00. 3 or more—price only \$.80 each.

DOLL FACES only

Our beautiful plastic smiling clown faces now \$2.00 per dozen—less in 3 dozen lots—size 2 1/2" x 3". Also available: sweetheart, cat, colored mammy, rabbit, monkey, panda bear and chicken faces at various prices. Folder with description and prices 10c. No C.O.D.'s. THRIFT MAILMART, Wentz 41, N. Y.



"THIS HOME BUSINESS EARNS \$4 AN HOUR,"

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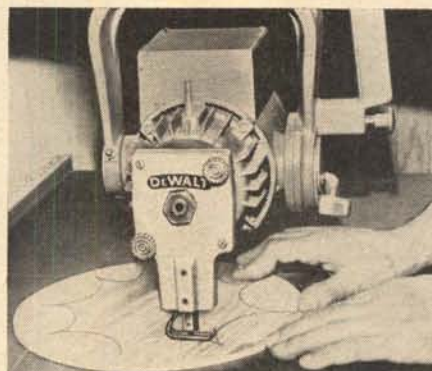
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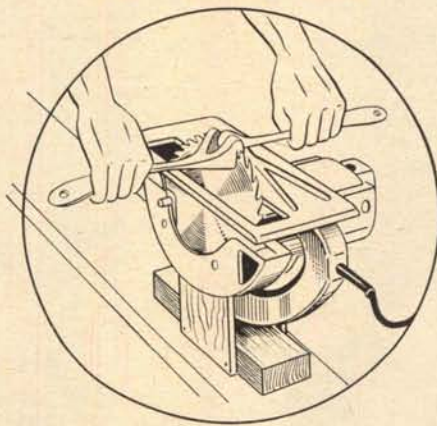


WEIGHING JUST 23 oz., and not much larger than a man's hand, is a saber-saw attachment for the DeWalt radial-arm saw. Working directly off the motor shaft, the saw delivers 3,600 strokes per minute and has a cutting capacity of up to 2 in. \$14.95 from DeWalt dealers. For further information write Dept. "M," DeWalt, Inc., Lancaster, Pa.

Free Gluing Handbook

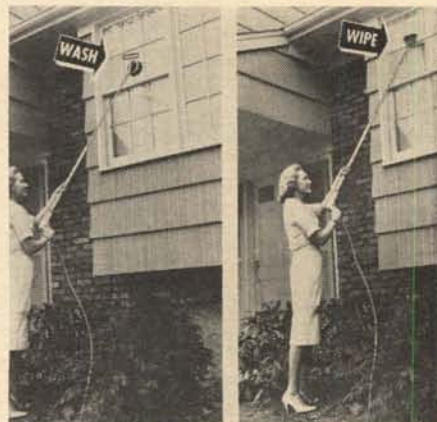
NEW 12-PAGE, 4-COLOR pamphlet contains 45 illustrations and wood-gluing chart, lists correct adhesive for most every material and job. Construction of beams, reinforcing gussets for framing, special joints for boat construction, furniture cabinets, etc., are described. Also provided is list of companies where catalogs of woodworking plans may be obtained. For free copy of Wood-Gluing Handbook, mail a self-addressed, stamped envelope to Dept. H, Borden Chemical Co., 350 Madison Ave., N. Y. 17.

Saw-Setting Tool



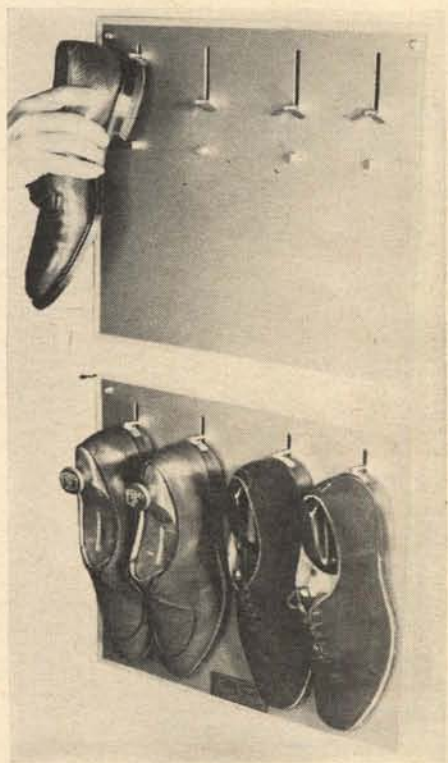
ABOUT 5 MINUTES is all that is required to set the teeth in a circular saw without removing the blade. Designed for popular-size saws from 6 to 7 in. dia., with 5/8 to 1 in. spacing from point to point, tool is priced at \$3.00. Swanson Tool Co., 9113 S. 53rd Ave., Oak Lawn, Ill.

Outside Window Washer



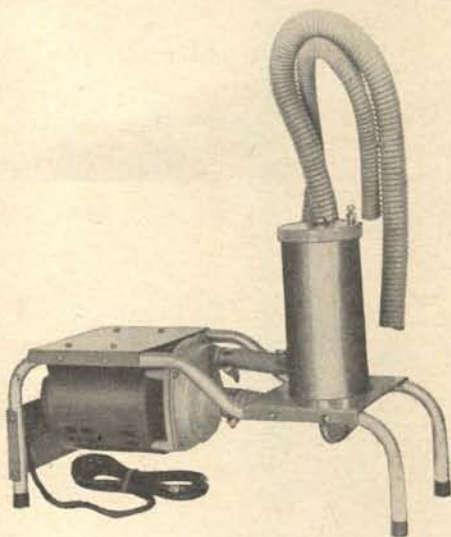
WASH AND DRY windows in a 1-floor house with this handy tool that has swiveling pistol grip, telescoping column. Dial control provides suds, clear water, or shut-off. Inner brush rotates under water pressure. Also fine for washing the car. Whirl-A-Way is \$8.95 from Osrow Prod. Co., Glen Cove, Long Island, N. Y.

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SMALLER, ABOVE-GROUND POOLS now can have the protection and advantages of a filter. Designed for pools holding up to 2,500 gal., the unit is portable, priced at \$69.95. For more information: Lomart Industries, Inc., 199 Bleecker St., Brooklyn 38, N. Y.

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NO MORE RUSTED bolts, skinned knuckles when attaching or removing license plates on your car if these nuts and bolts are used. All nylon, the nuts and bolts are non-rusting, non-staining and self-locking. At auto-supply and hardware stores. Made by Ideal Design Co., P. O. Box 548, Beecher, Ill.

Aluminum Solder



TESTED IN THE Model Shop, this rather amazing material can be used to solder aluminum to aluminum, as well as aluminum to other metals. Can be used on zinc-alloy castings (the brittle white-metal used for some toys, carburetor castings and the like) that previously have defied repair. Our test was on the basket of a coffee percolator. While the solder can be applied with either a soldering iron or propane torch, a torch is necessary on most aluminum items, as the heat is dissipated so rapidly. For more information: Metals for Industry Inc., 299 Pavonia Ave., Jersey City 2, N. J.

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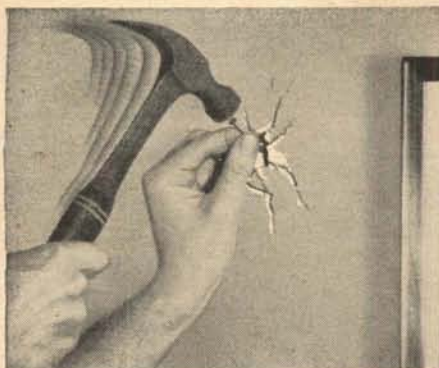
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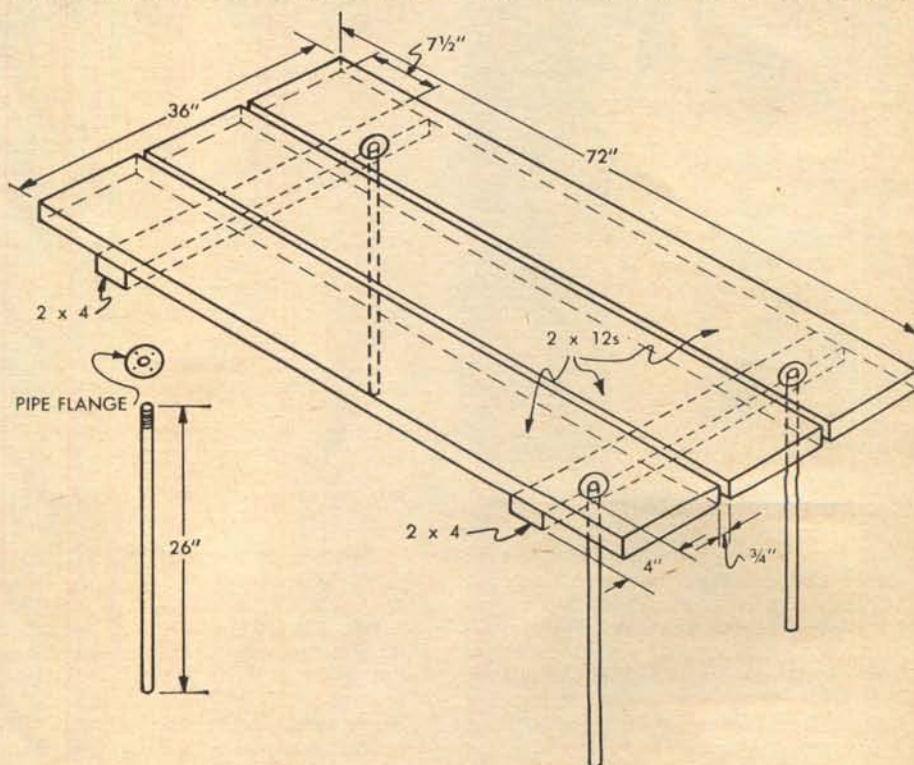
Just an hour after you start construction of this table you can have it set up and in use. Choice of wood depends on personal preference and pocketbook. Redwood, pine, fir or cedar are good.

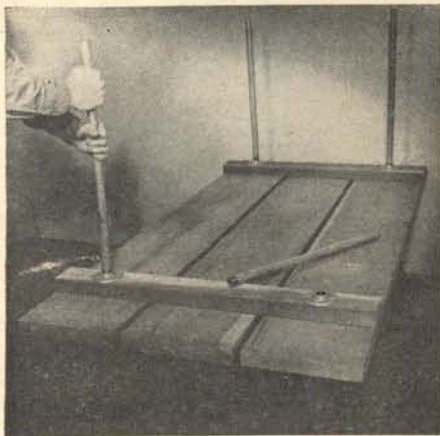
60-Minute Picnic Table

PAUL COREY

ONLY AN HOUR'S TIME is required to assemble this table that can be used on the back lawn, a patio or game room. One of the secrets of the quick assembly is having the lumberyard cut the material to length. The 6-ft. lengths of 2 x 12s as well as the other parts required for the assembly can be fitted in the trunk of your

car or on a car-top carrier. In a pinch, they can even be fitted inside. Choice of wood depends on personal preference, the amount you wish to spend and on what type is available. After assembly a couple of coats of clear lacquer can be applied that will dry quickly and permit immediate use of the table. Later spar





Setting up or taking down table requires only the inserting and turning pipe legs in the flanges. We would recommend threading other ends, using pipe caps on leg ends.

varnish should be applied.

Although not included on the original model, we would suggest threading the pipe legs at both ends and turning on pipe caps. They would prevent dirt from being forced into the open ends of the pipe and avoid cutting into soft turf. Should the table be used indoors, it would be necessary to use crutch tips on the legs, or shouldered dowels. $\Delta \Delta$

MATERIALS LIST

Top, 2 x 12, 6' long, 3 req'd.
Cleats, 2 x 4, 3' long, 2 req'd.
Legs, $\frac{3}{4}$ " galv. pipe, 26" long, 4 req'd.
Leg Holders, $\frac{3}{4}$ " pipe flanges, 4 req'd.
 $2\frac{1}{2}$ " - #12 Wood Screws (to fasten cleats) 12 req'd.
 $1\frac{1}{2}$ " - #12 Wood Screws (to fasten flanges) 16 req'd.
Waterproof Glue



Removal of legs permits storing table in corner of basement or garage. Here table is slipped behind workbench, legs tied to one of the cleats with cord to keep them handy.

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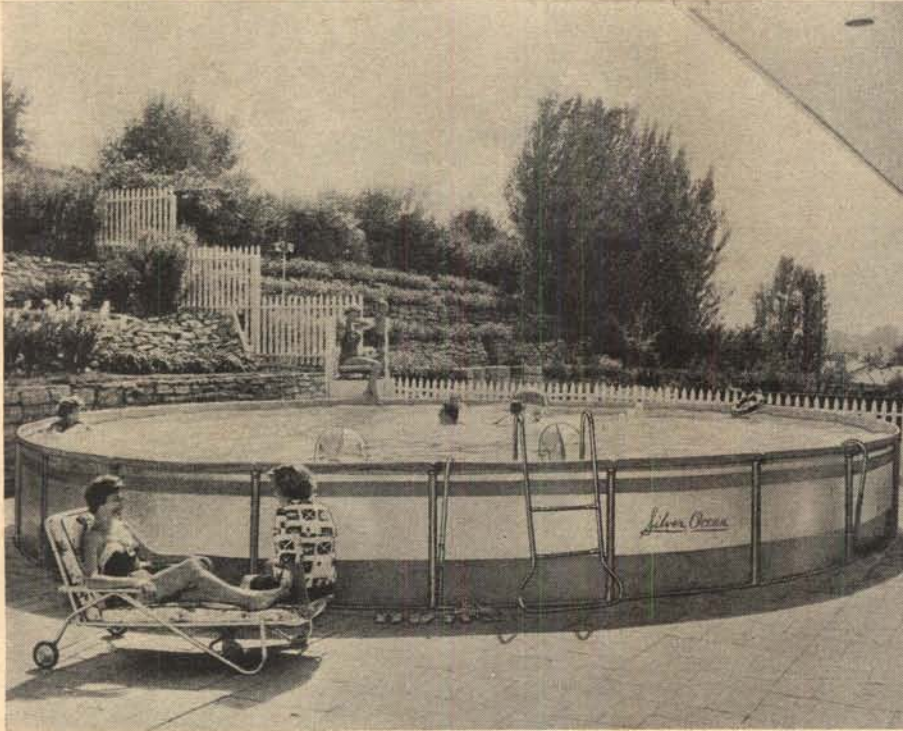
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Landscaping Do-It-Yourself

Swimming Pools

1. Landscaping for this Doughboy Silver Ocean is simple. Pool is positioned on patio that is located in front of attractive rock garden.

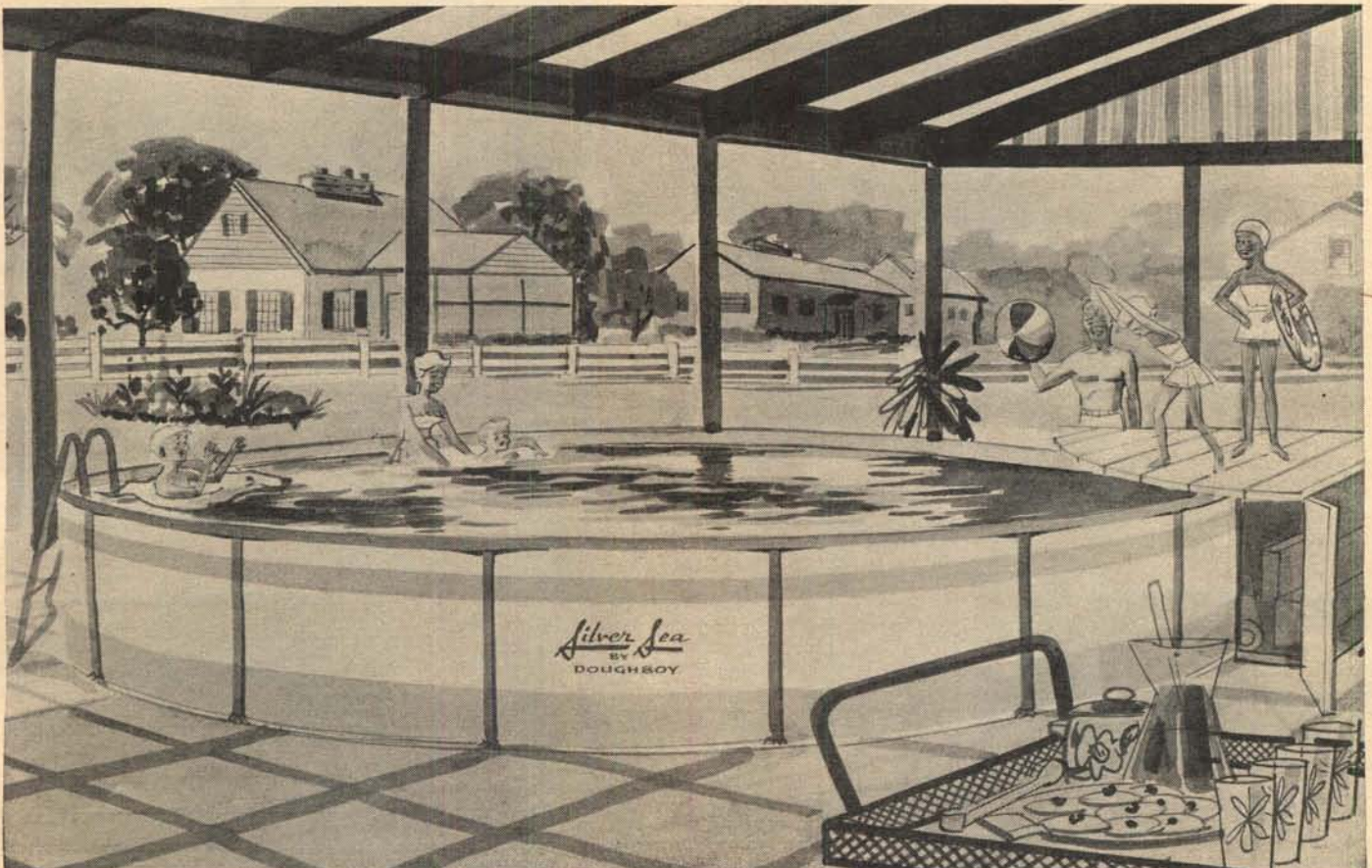


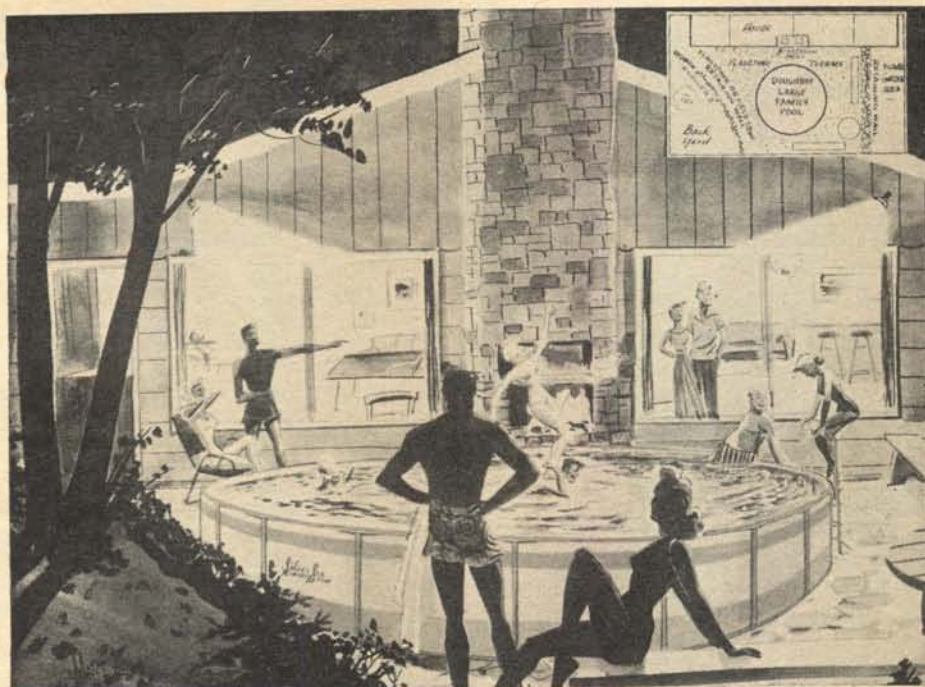
ANY HOMEOWNER now can install a swimming pool in his back yard. It can be an above-ground, portable type that is readily disassembled and moved with the furniture, or it can be an in-the-ground type that becomes part of the property.

Prices of pools have been reduced so there is one for almost every budget, and many manufacturers are designing pools specifically for the do-it-yourself market. All pools shown are in the latter category.

One factor that should be considered before you purchase a pool is the landscaping around it. Will the pool be just a hole in the ground full of water, or a tank of water setting

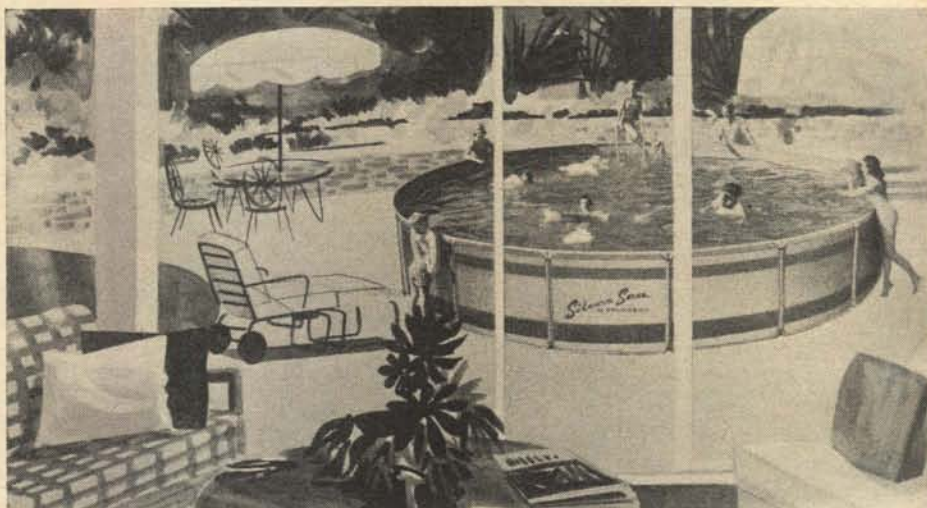
2. Pool here is located on patio next to house, simple roof of 2 x 6s is covered with canvas or fiberglass to keep off strongest rays of sun.



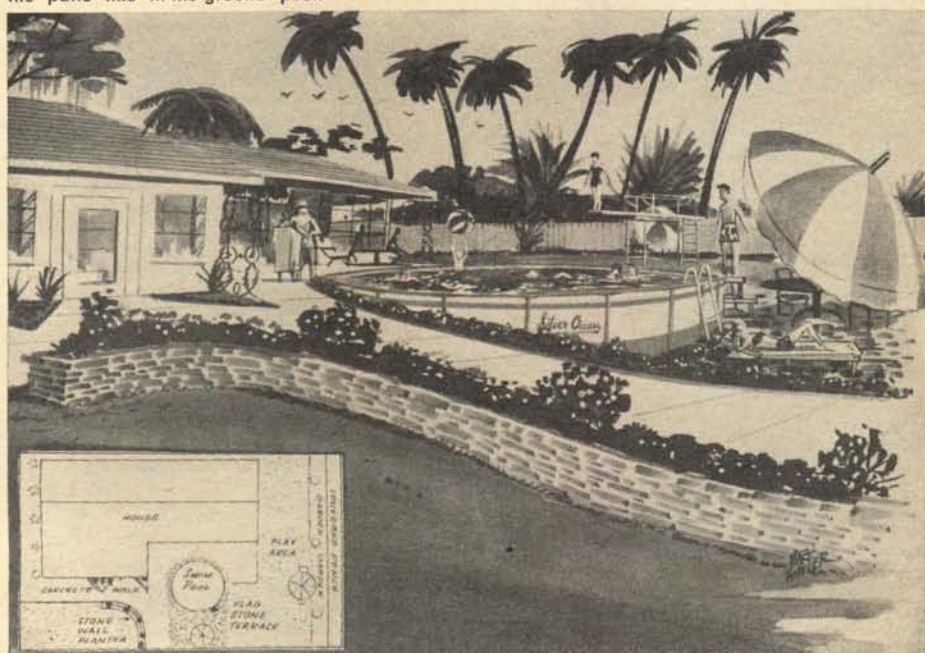


3. Pool here also is on patio next to house. In all cases, area under pool is cushion of soil or sand to avoid abrasion of plastic liner.

4. Cool view from this picture window is the swimming pool on the patio just outside; a constant invitation for a cooling dip in the water.



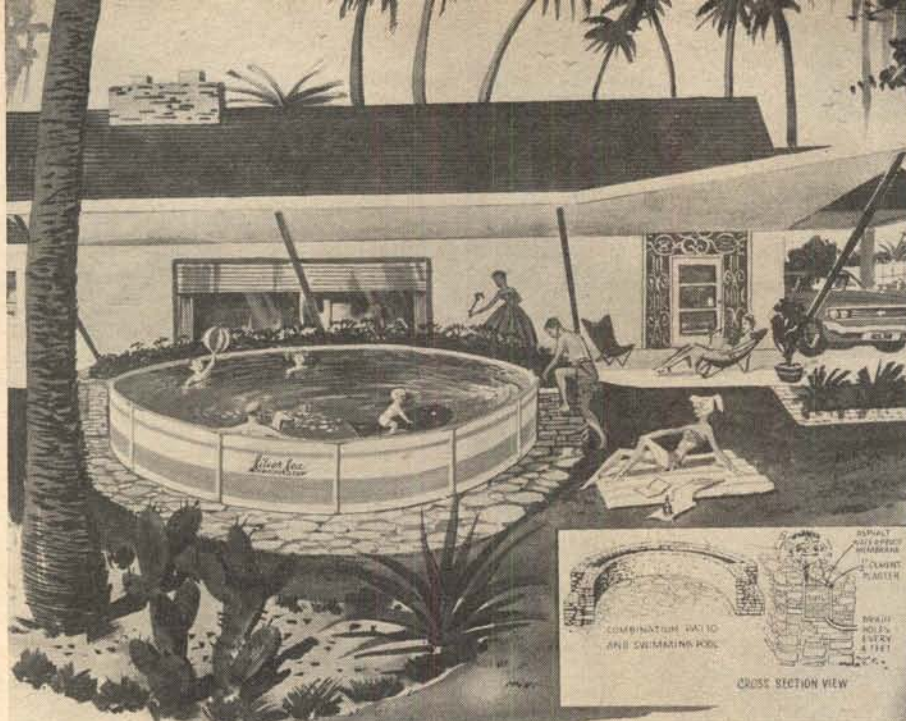
5. The slope of this yard permits setting a pool partly in the ground so upper side is flush with the patio like in-the-ground pool.



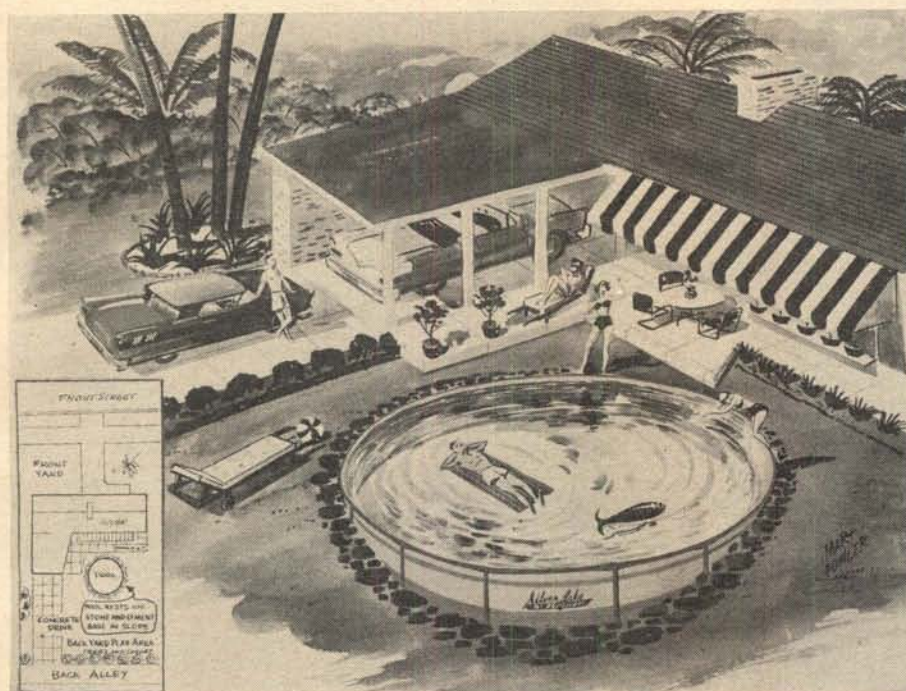
above-ground? It needn't be, not with the proper landscaping. And by landscaping is not meant a great number of flowers and plants, although these can be made an important part of the over-all plan. What is meant is to make a pool blend with its surroundings, rather than stand out as a stark, alien shape. This can be done with fencing, screening, planting and shaping the earth around it. The landscaping problem is even more important with an above-ground pool and, realizing this, Doughboy Industries has a continuing program of research and development to aid purchasers of their pools in proper landscaping. Arthur J. Miller, Jr., vice president of the Plastics Division of the company originated the program some years back, and Jack E. Koehler, Sales

Manager, now continues with the task. Mr. Koehler works closely with Doughboy dealers, and the sketches, Figs. 1 through 7, show some of the actual designs worked out for purchasers of the pools.

Quite often landscaping around a portable pool can be quite simple, and consists merely of positioning the pool in the center of a patio, as in Figs. 1 through 4. A fence, a wall of rock or brick, perhaps an "eggcrate" roof to keep off the strongest rays of the sun will do wonders. If your yard is on a slope, or if the yard has been built up, as around a bi-level home, the pool can be set into the slope, as in Figs. 5 through 7. In all cases, if the pool is set in the ground a few inches, removing the plastic liner in the winter will



6. In this landscaping plan a rock planting box runs around one half of the pool. Steps in the end of the planter permit easy entry to pool.



7. Sloping yard here is utilized to permit setting most of the pool into the ground. Stone walk separates pool from the lawn.

permit the area to be flooded for an ice-skating rink.

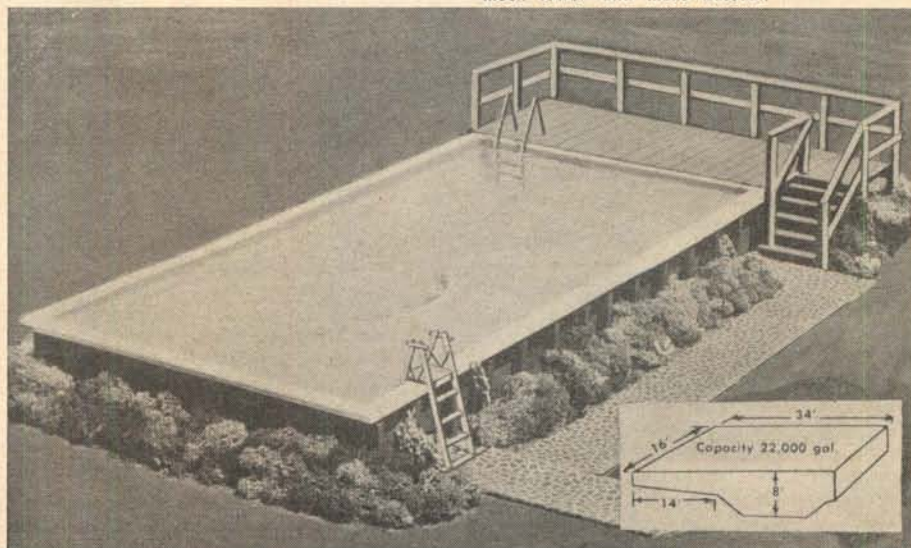
In Figs. 9 and 10 are shown Buster Crabbe Pools by Cascade. In Fig. 9 the pool is enclosed by an attractive rustic fence, and the filter and accessories are housed in a neat concrete-block structure. Concrete decking around the pool ties it to the ground, assures an easily-cleaned surface. In Fig. 10, while the pool is enclosed by an attractive fence and handy to the house, there are several disadvantages. The lack of a surface to separate the pool from the lawn definitely will result in grass clippings being carried into the water every time the lawn is mowed. Also, splashing from the pool

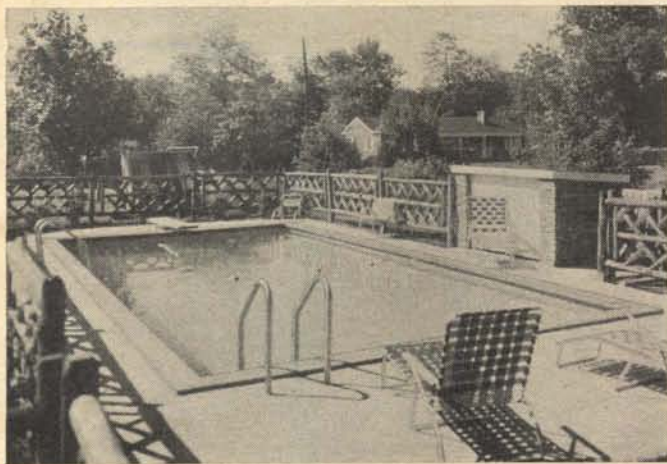
will keep the lawn adjacent constantly saturated and will kill out the grass. This is the sort of situation that should be avoided when installing a pool. The Buster Crabbe Pools themselves are designed especially for do-it-yourselfers and can be installed in a matter of days. The Cascade Company now has a smaller version of the standard model that sells for less and is just as easy to install as the larger model.

The Cabana Convert-A-Pool, Fig. 11, consists of 12 prefabricated sides that are interlocked with steel rods running the full height of the sides. A vinyl liner makes this pool water-tight. A new policy with the Cabana Company permits owners of the Convert-A-Pools to trade them in at full value for a Vis-A-Pool, which is a rectangular version of the pool. It is larger and deeper and requires a concrete base to support the liner. In Fig. 11 is shown one method of landscaping the Convert-A-Pool. The wooden sides are very much like a fence, and the trees and low-growing shrubs help fit it to the location.

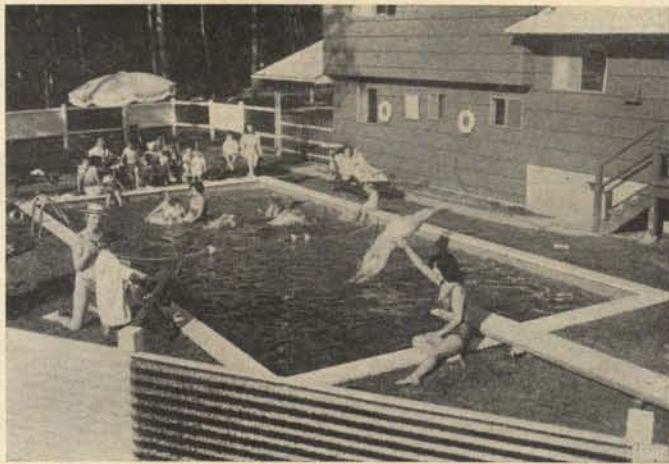
The Hunter-Powers pool, Fig. 8, is another above-ground pool that can be fitted to its surroundings with plantings. As shown, shrubs and plants can be located all around the wall of the pool, "tying" it to the ground in a natural manner.

8. Shrubs planted around Hunter-Powers above-ground pool tie it to the earth, make it look much lower and more natural.

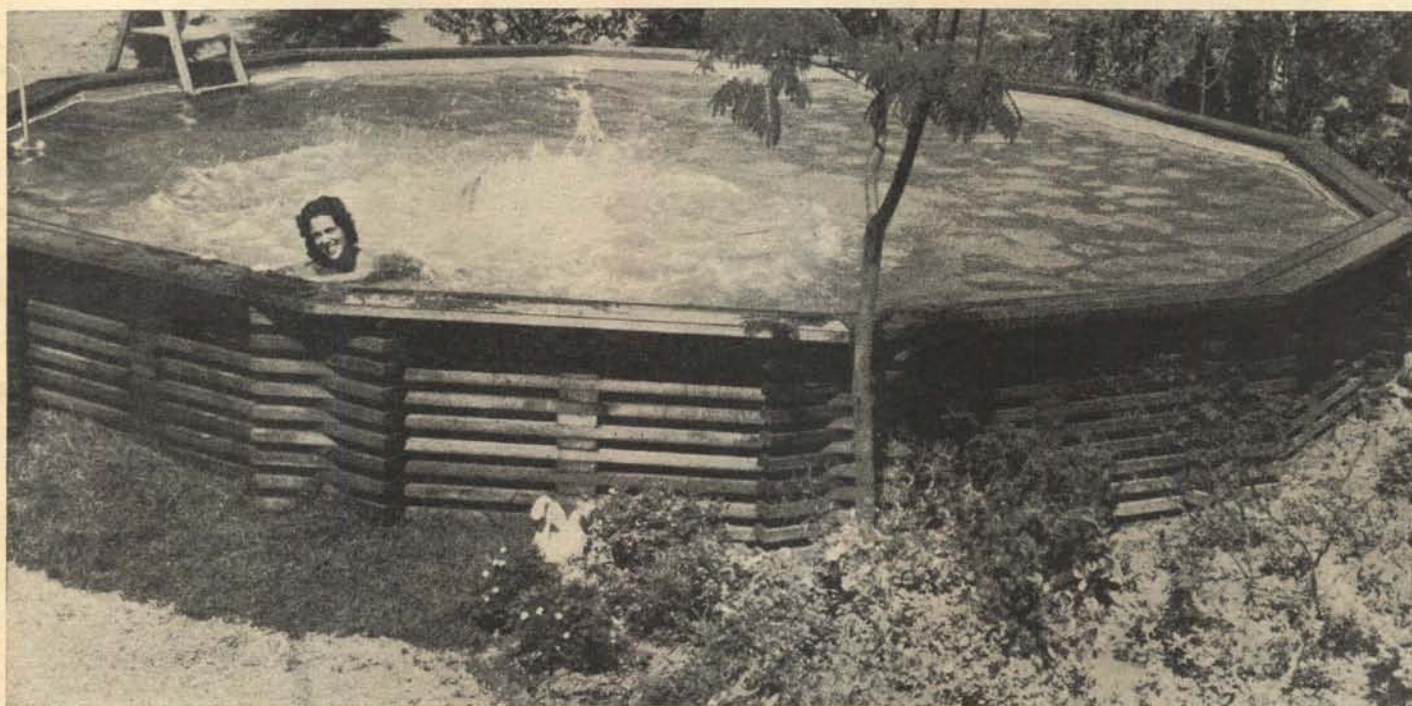




9. Landscaping around this Buster Crabbe Pool by Cascade is simple, consisting of a rustic fence, concrete deck. Concrete-block structure at right is for filter system and storage of cleaning equipment.



10. This Cascade pool is located conveniently near the house, is fenced in with attractive panels of fiberglass. Main fault here is that grass clippings would be tracked into pool, lawn adjacent to pool will be saturated.



11. This Cabana Convert-A-Pool fits well with "natural" landscaping, as its fence-like sides harmonize with almost any type planting.

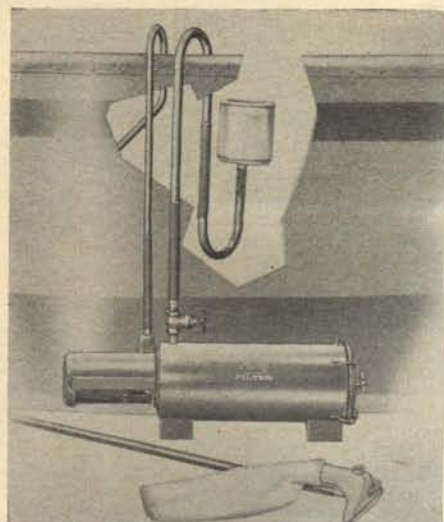
Figs. 13 and 14 show the SwiMaster Pool that has, in a manner of speaking, "built-in" landscaping. It has its own fence, and the wooden sides open up to provide storage for pool, yard and garden equipment. Planting around this pool must be far enough from it to permit opening the doors of the storage spaces.

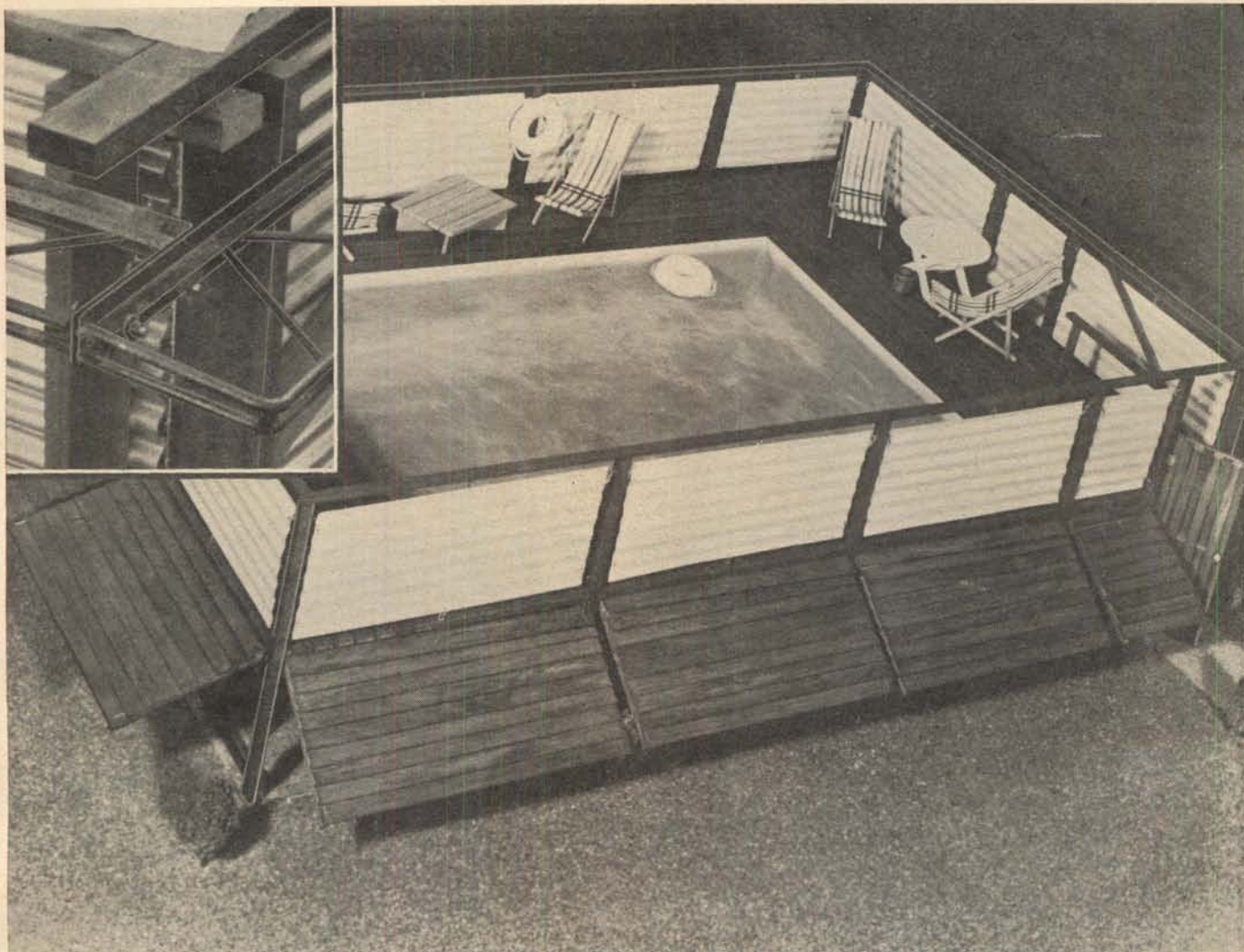
A big factor in landscaping a swimming pool, often overlooked, is that it will effect the maintenance problems connected with any swimming pool. It is necessary with any pool to use a testing kit, such as the LaMotte unit in Fig. 12, to determine the pH factor and chlorine content of the water. These tests tell the pool owner how much chlorine must be added to keep the pool sanitary, and whether or not chemicals need

to be added to eliminate an acid or alkali condition of the water. It also is most necessary to keep a pool clean of foreign objects. This means leaves dropped by trees and shrubs, grass clippings, flower petals

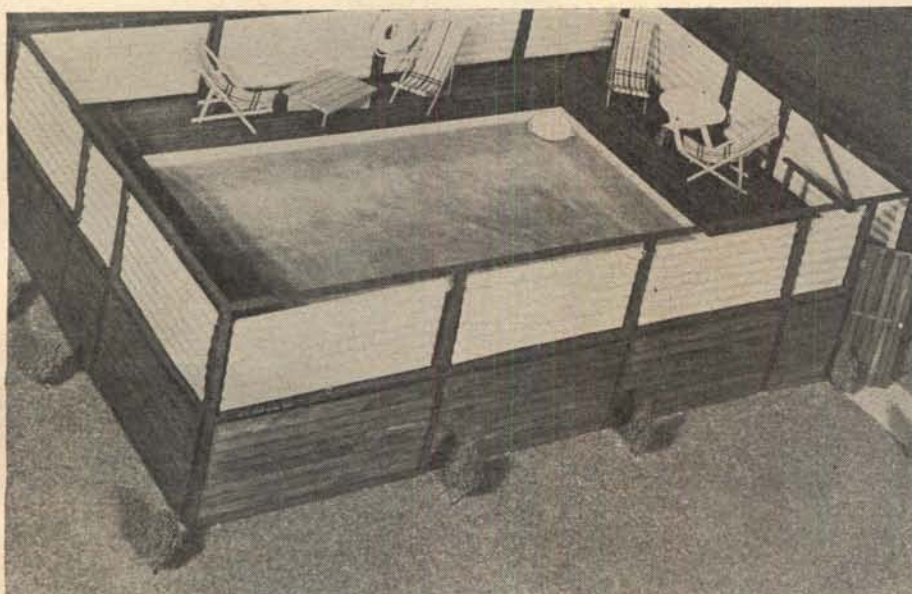


12. Testing kit, such as this LaMotte unit, is an absolute necessity to every pool owner. It assures that pool water is clean and sanitary. Do not even consider owning a pool if a filter system, like this Doughboy unit with surface skimmer and vacuum cleaner, is not included.





13. SwiMaster pool by Southern National has its own deck and its own fence. Plantings around it must be located to permit opening storage doors. Inset shows how steel framing is bolted against pool wall to strengthen it and provide means of supporting the decking around it.

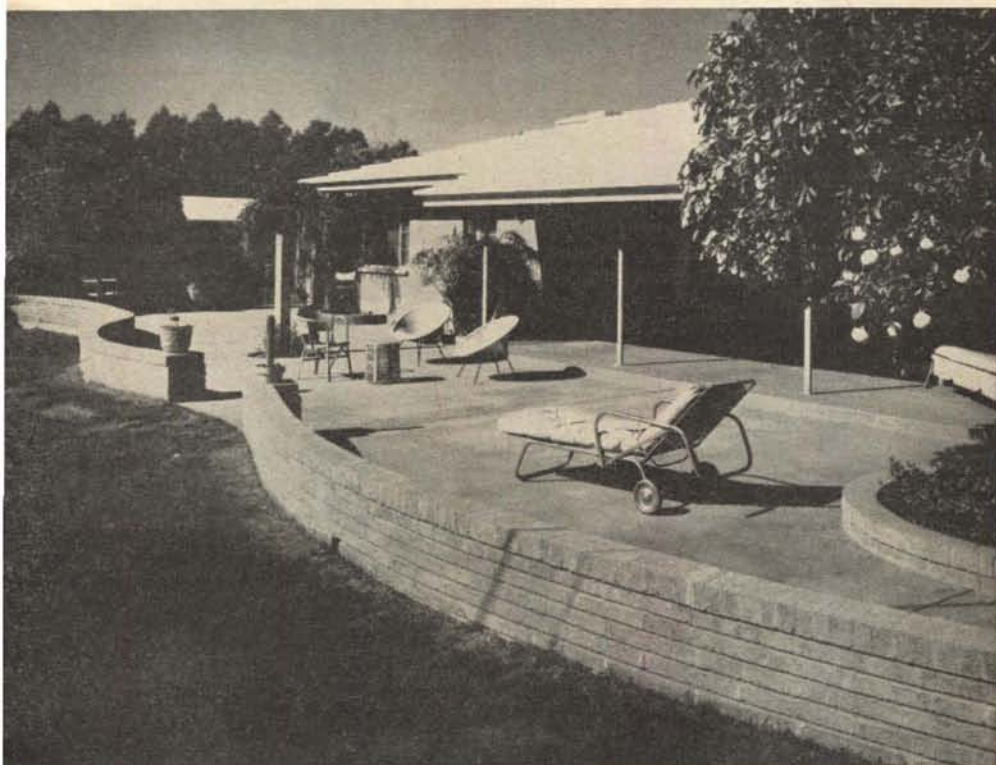


14. Doors around SwiMaster are closed in this view, demonstrating its neat appearance. While shrubs do appear too close to the doors to clear them when they open, they are flexible enough to bend away. As indicated when doors are open, larger planting area is available at corners of pool.

and the like. Keep trees and plants well back from the pool, provide a space between the pool and a lawn, and be sure to have a paved walk between the pool and house or bathhouse, to prevent the tracking of grass clippings into the pool area. You should not even consider owning a swimming pool, unless a filter system, Fig. 12, is included as part of the basic equipment. This unit removes foreign matter from the water, as it is pumped through a filtering material. The surface skimmer picks up debris floating on the surface. The vacuum-cleaner attachment is used to clean the bottom of the pool. The less foreign matter that is introduced into the pool, the less the filter system absorbs, and the longer it can run without attention from the pool owner.

Remember, the less time you spend cleaning and maintaining the pool, the more time you will have for those enjoyable swims in the cooling water. $\Delta \Delta$

Concrete In Your Landscaping



Now that houses tend to be long and low, porches have come down to ground level. A paved area that extends the porch can extend considerably the living area of a small home. The solid concrete floor minimizes maintenance, the low, curving wall of concrete brick encloses the area.

Concrete steps on an inclined approach to a home have been extended to form planting boxes. Every other step provides space for plants.

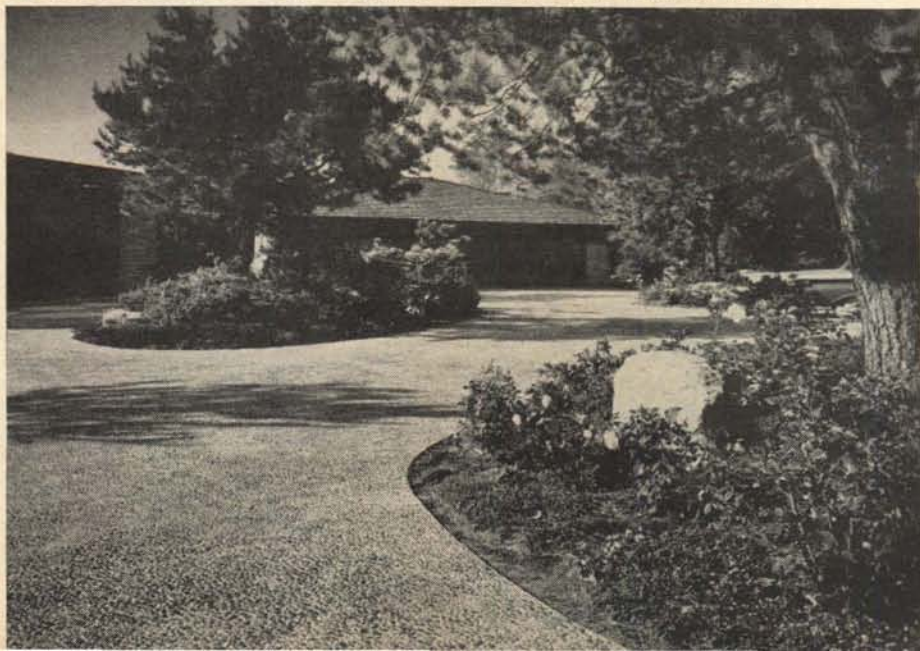
ONE OF THE MOST VERSATILE of materials for landscaping is concrete. It can be poured in place and given a great variety of finishes, or used in precast shapes, such as solid or hollow-core blocks. Poured concrete can be left its natural gray-white color, or various tints can be added. The finish can be made almost glass-smooth or given a surface as rough and interesting as cobblestones. Shown in these photos are just a few of the many ways concrete can be used. △ △



Topping of attractive pebbles or crushed stone is scattered thickly over still-plastic concrete and surface worked smooth with strike-board to produce this unusual surface. When concrete is firm, top layer of cement paste is removed with stiff brush and surface is washed with hose.



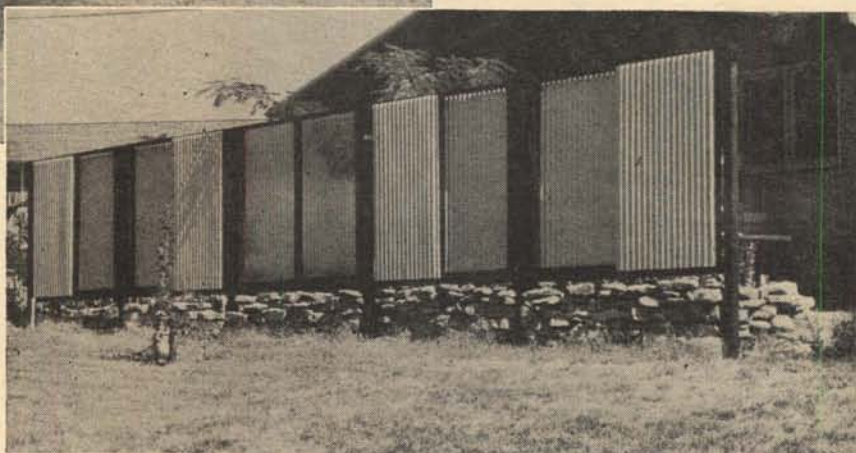
Driveway is paved with 2-ft.-sq. slabs of concrete with sod strips between, providing a patio area for entertainment as well as drive.





Aluminum Patio Wall

1. Outside of patio wall is just as attractive as inside. Heat and glare of afternoon sun are reflected away from patio; the embossed surface of the aluminum simply looks cool-green. Posts and lumber used for wall are stained dull black to provide vivid contrast to color of panels.



ENLARGING A SMALL patio-porch, Figs. 2 and 3, was the first step in making an "outdoor living room" for this home. Because of the slope of the land a rock wall was built, then forms were set up and a rented concrete mixer and two day's work, Fig. 4, produced the floor area required. Because the patio is on the west side of the house it was necessary to provide a wall for this out-

door living room to keep out the heat and glare of the afternoon sun. Besides protection from the sun, the wall of an outdoor living room must have several other characteristics: It must protect the patio from the wind, yet provide ample ventilation and cooling breezes. It must be equally attractive on both sides and, most important of all, require minimum maintenance.

Materials chosen to build a wall with all these characteristics were redwood, aluminum and fiberglass. Redwood 4 x 4s were used for the posts, as this wood is highly resistant to insects, weathering and rot, Fig. 5. Panels for the wall were Kaiser Aluminum Green Diamond Rib, Figs. 11 and 12, with two panels at the center of the wall of translucent fiberglass. Our cover photo and



2. Too-small patio-porch was extended by laying forms, pouring concrete. Wall of rocks was necessary to provide level surface for patio slab.



3. View from side of patio-porch shows even more clearly how small it was; redwood table is almost as wide as concrete slab.



4. Rented concrete mixer and two-days' work produced patio. Strip of soil for planting was left between concrete slab and patio wall.

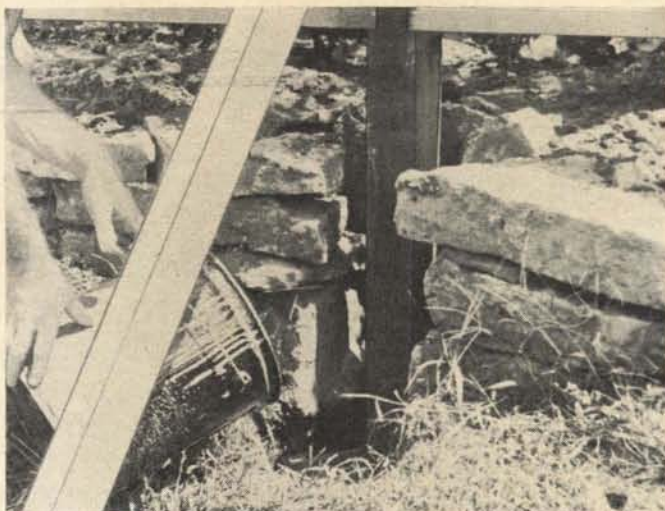
5. Post holes were dug, 4 x 4s notched to accept 2 x 4s, then this assembly was positioned and leveled. Braces held posts until concrete set.

Fig. 1 show the finished wall. It is strikingly attractive and provides the necessary shade and wind protection, yet does not stop cooling breezes on hot afternoons.

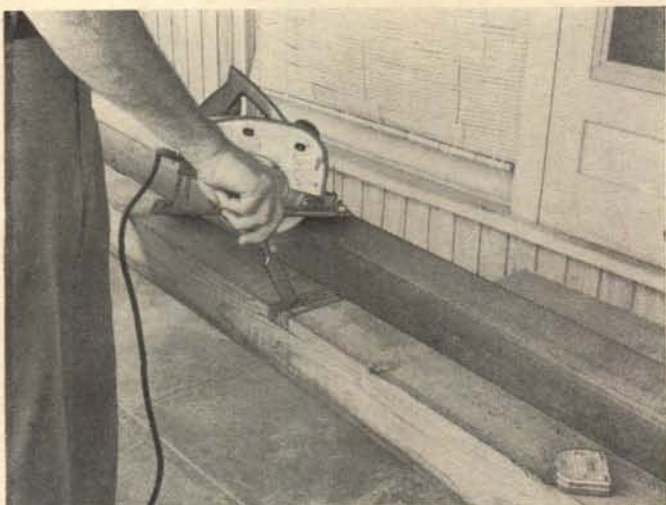
First step in building the wall was to set in a line of 4 x 4s spaced 8 ft. apart, on centers, Fig. 5. Before being put in the ground the posts were notched 1 in. deep, Fig. 8, to accept the ends of horizontal members. After the posts were positioned and plumbed, the distance between the bottoms of the notches was measured, and 8-ft. lengths of 2 x 4 shortened to fit. (We suggest this method, rather than attempting to cut the members, then fit the posts to the spacings produced.) This



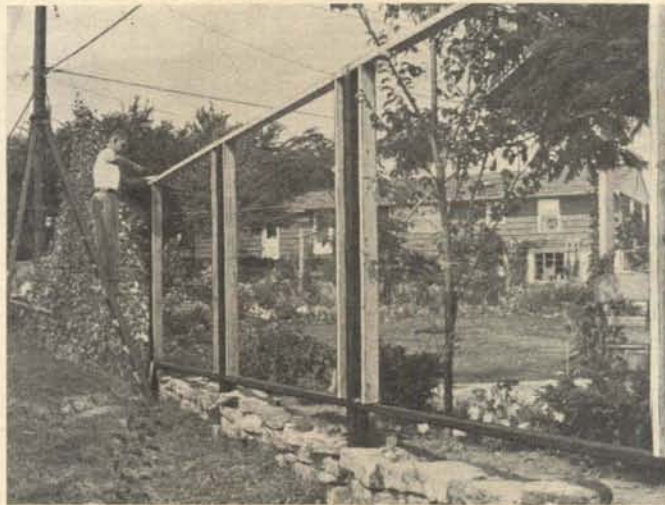
6. Only small amount of concrete was required for each post, so ready-mix material was used. Dry material is dumped from bag, mixed to redistribute materials, then half of bag is shoveled into small mixer. Water is added and mixer does the rest of the work for you.



7. Additional advantages of small mixer that uses 5-gal. container for drum is that container is small enough to fit in hard-to-reach spots as here. Post is in opening in rock wall and 2 x 4 used for brace does not help simplify the pouring problem.



8. A quick way of cutting notches is to make two outside cuts with hand or electric saw, then make additional cuts between. Resulting slices are easily removed with wood chisel, then chisel is used to clean and level bottom of notch which should be snug fit.



9. After concrete has set around posts, top cross members and vertical pieces are nailed in place. Posts are 8 ft. apart, which is fairly standard; uprights near each post are to provide opening to relieve wind pressure, as this wall faces prevailing strong winds.

assured that the centers of the posts were 8 ft. or less, center-to-center, so that 8-ft. lengths of 2 x 4 could be nailed to the tops of the posts, Fig. 9. All 2 x 4s were construction-grade lumber. Redwood, of course, would last longer, but cost slightly more. Because the wall shown is in a area where strong winds, with gusts up to 40 and 50 m.p.h., are quite common, vertical spaces were provided to relieve wind pressure. Lengths of 2 x 4 were spaced 4 in. from the posts as indicated in Figs. 9 and 10. For the same reason all posts are set in concrete, Figs. 6 and 7. Ready-mixed concrete made by the Sakrete Co. was used, and mixed in a Kol Mixal, as each post required only a small amount of material.

The Green Diamond Rib Aluminum sheets come 54 in. wide (allowing a lap to produce an applied width of 48 in.) and 12 ft. long. Snips were used to cut the sheets in half, a linoleum knife was used to "rip" them lengthwise, Fig. 11. Although there are a number of ways of attaching the sheets of aluminum, we simply nailed them to the faces of the framing, Fig. 12, with special nails that have heads to match the Diamond Rib. With this method of application, any rain that drops through the openings at the top of the wall simply runs out between the framing and corrugations at the bottom. The special nails, also available at Kaiser dealers, are made of anodized aluminum and so are rust and corrosion-proof. Green Diamond Rib, as the name implies, is a soft green color, produced by an anodizing process so it does not wear or weather. Small diamonds are embossed in the metal, adding to its strength, and producing a surface that diffuses both heat and light. In the wall shown, all lumber was stained black, by applying flat-black enamel, then wiping it off while still wet. The black makes a striking contrast with the color of the panels. Note in the photos of the finished wall that the panels are fastened to alternate sides of the framing. This arrangement gives added depth and design to the wall, and can be varied to suit the number of panels in a wall, and the preference of an individual builder.

Length of the wall, of course, can be changed to suit. It may be as small as 8 ft. long, consisting of two panels or any length in 4-ft. multiples. No matter what the size, the wall will add beauty to your yard and home and make your patio truly an outdoor living room. Δ

TYPICAL WALL SECTION

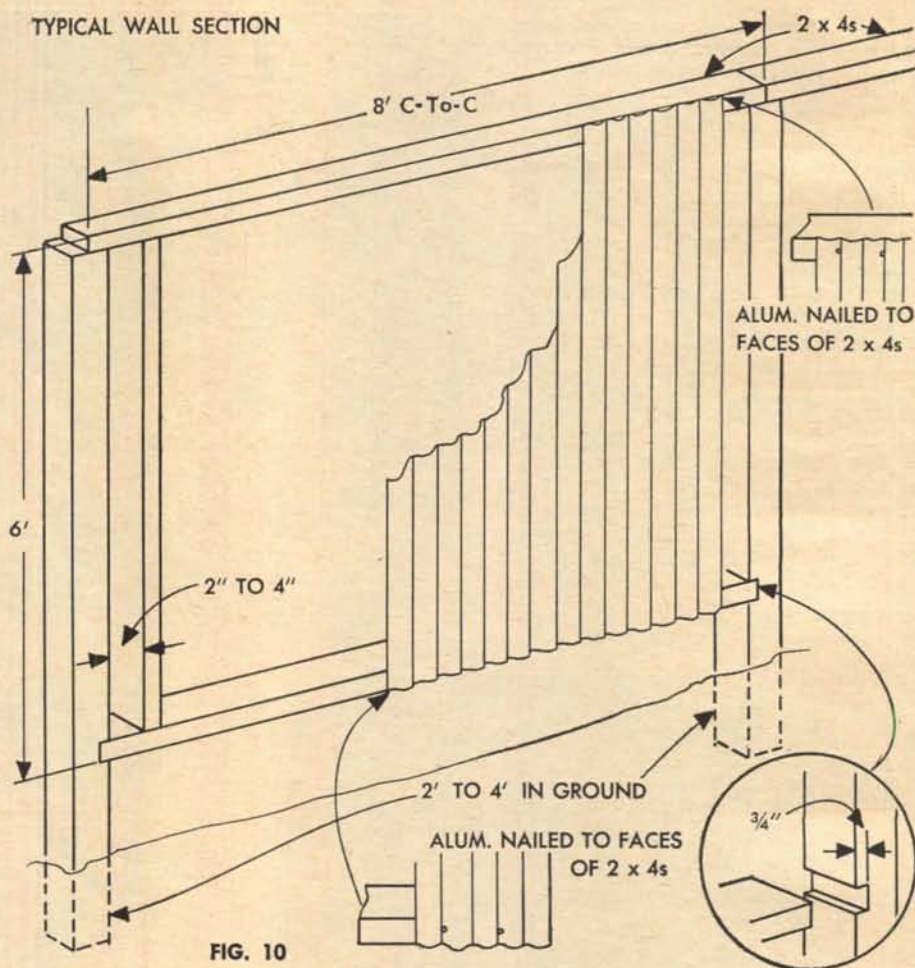
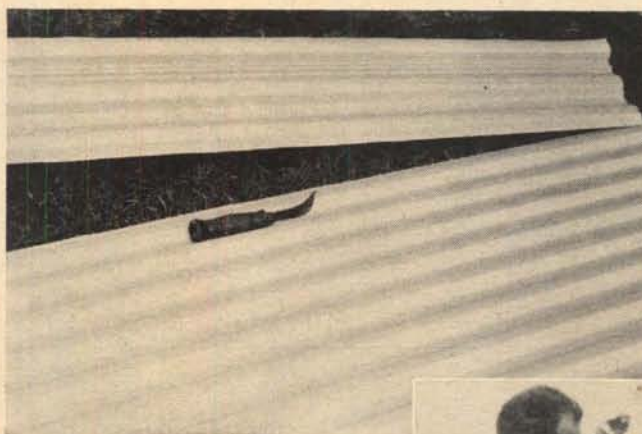


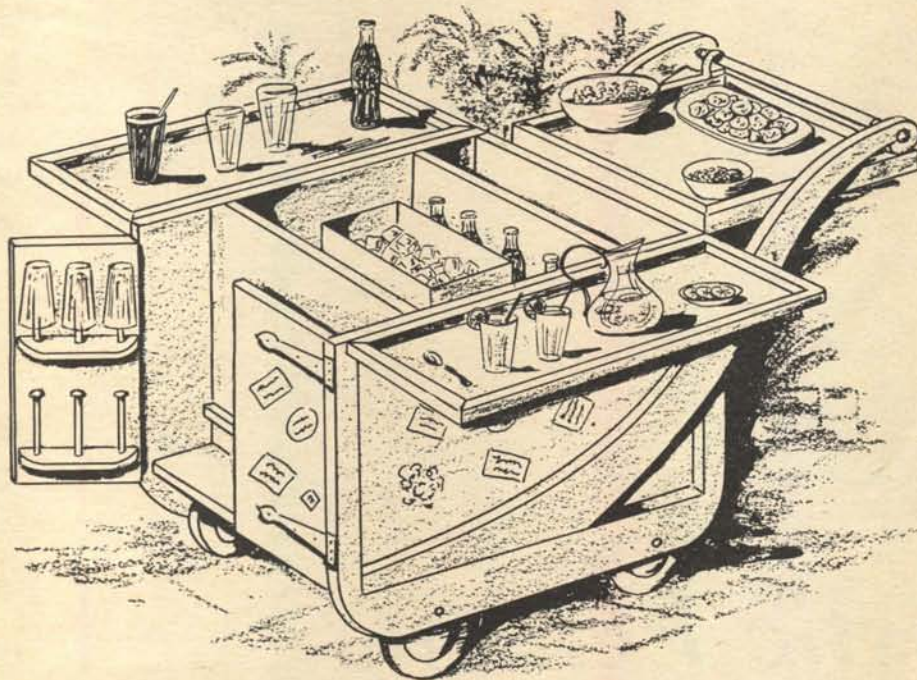
FIG. 10



11. Snips were used to cut 12-ft. lengths of aluminum in half, linoleum knife was used to score line for breaking them lengthwise.

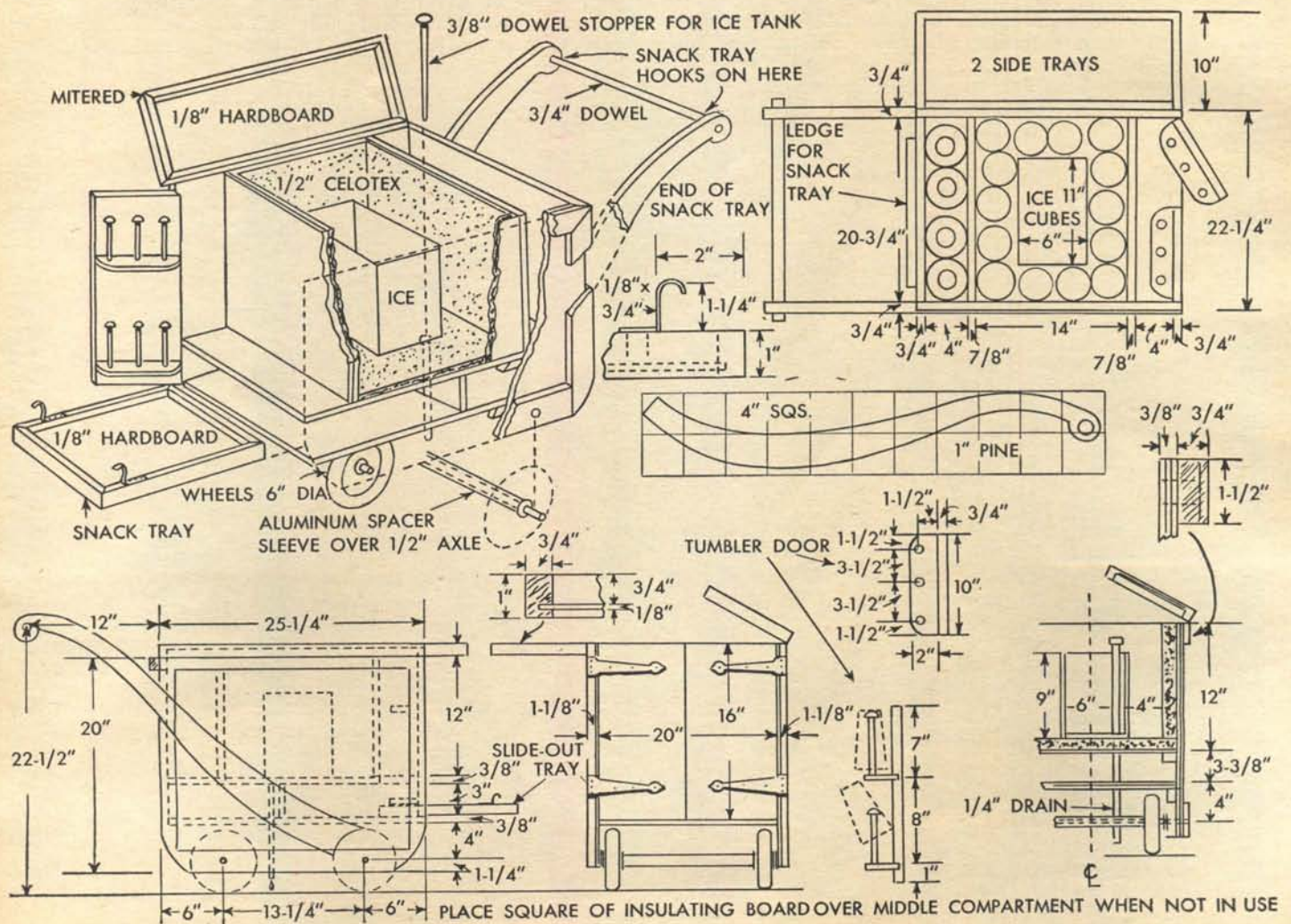


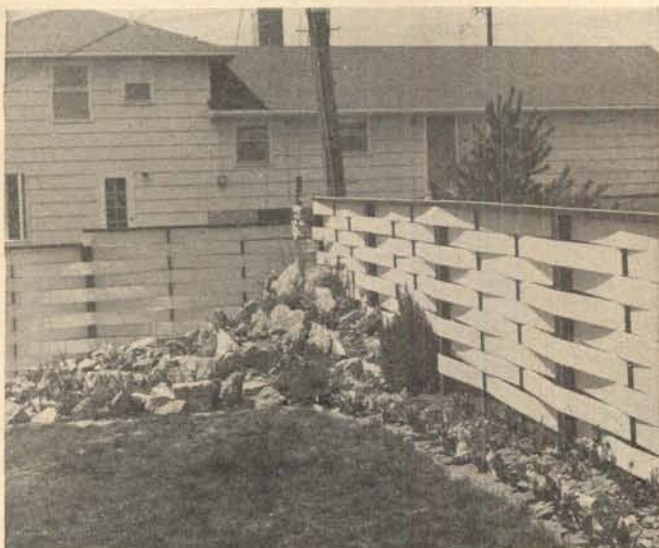
12. Simplified method of attaching sheets was to nail them to faces of 2 x 4 horizontal and vertical members. Inset shows matching nails.



KEEPING BEVERAGES CHILLED for a large party of children or adults on a patio can be a problem, but one that this patio pram will solve. Not only does the pram have plenty of space for keeping bottles or cans of beverages cold, but there is provision for serving snacks or sandwiches. The two halves of the top of the pram swing open on piano hinges to form generous-size trays, and a third tray that is hooked over the handle of the pram normally is stored in a compartment under the ice-box section. The tank of the ice-box section is large enough to accept cubes from four trays, or a bucketful of loose cubes. Accumulated water can be drained by removing the dowel drain plug. Construction of the pram requires $\frac{3}{8}$ -in. plywood and 1-in. solid stock. Tumblers are stored on dowels fitted in shelves on the doors of the pram. Strap hinges are used on the doors. With the side trays closed, the pram will fit easily through a 24-in. door, so it can be loaded in the house and wheeled outdoors. Paint the pram in gay colors and cement on cut-out pictures, decals or other decorations, then varnish over them. Δ Δ

Patio Party Pram





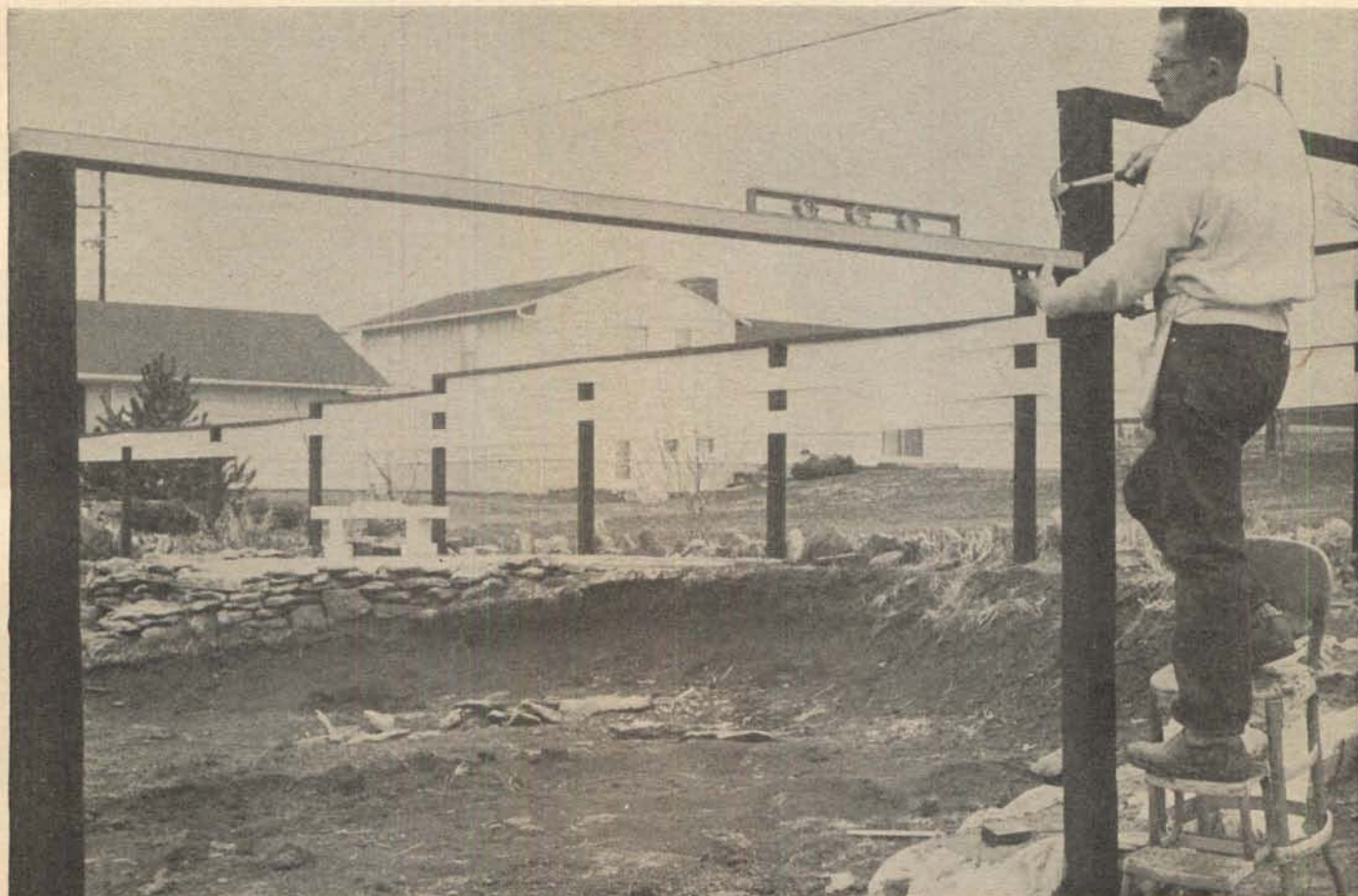
Spring one day, snow the next; the sudden change in weather did provide a chance to show that the plastic fencing looks good at any season.

Plastic Fencing

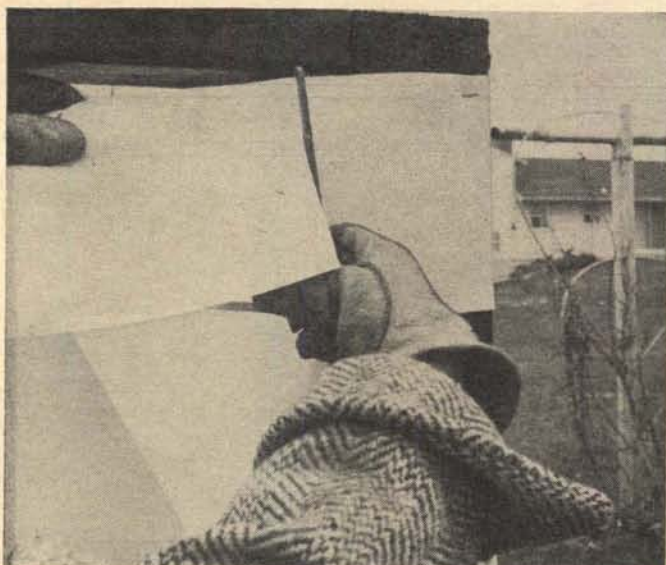
UNUSUAL BEAUTY, combined with low cost and ease of installation makes the fencing shown in this article a natural for the do-it-yourselfer. Weblite, as the material is called, comes in strips 6 in. wide, and in rolls up to 400 ft. long. At present the material is available in green, turquoise and white, (the white is used in the fence shown), but shortly will be obtainable in a greater variety of tones, including wood-like colors. One un-

usual quality of the material is that it is translucent, so that while it provides privacy, it does not keep out light. In sunlight the plastic has a glowing quality, by moonlight the white used on the fence shown has an almost luminescent appearance.

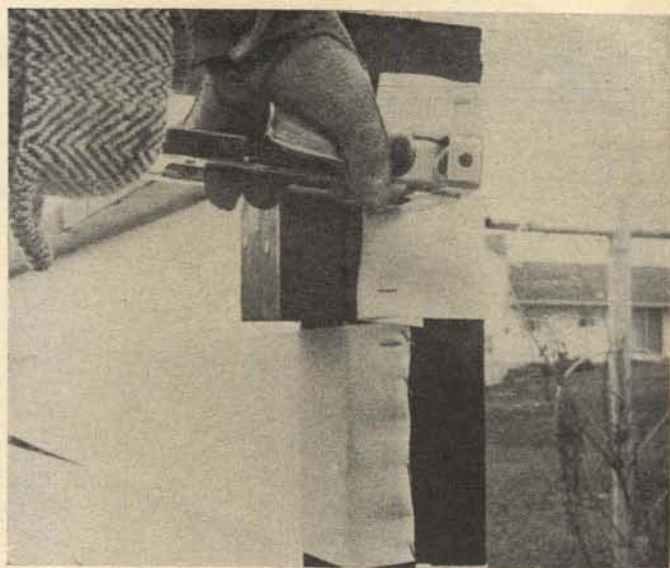
Metal or wood posts can be used with Weblite; redwood 4 x 4s are used for the fence shown, being spaced 8 ft. apart. A length of 2 x 4 is used across the tops of



1. Plastic strips are strung between 4 x 4s set on 8-ft. centers. Lengths of 2 x 4 are nailed across tops, no crosspiece is required at bottom.



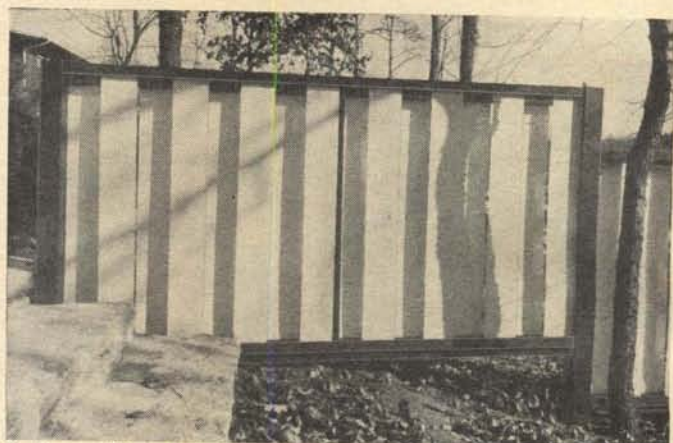
2. Cutting material for this fence is no problem, all that is required is ordinary pair of scissors. Plastic strips are cut after stapling in place.



3. A couple of staples holds strip while it is being cut, then end of strip is folded double and stapled again. Trim is nailed over end posts.



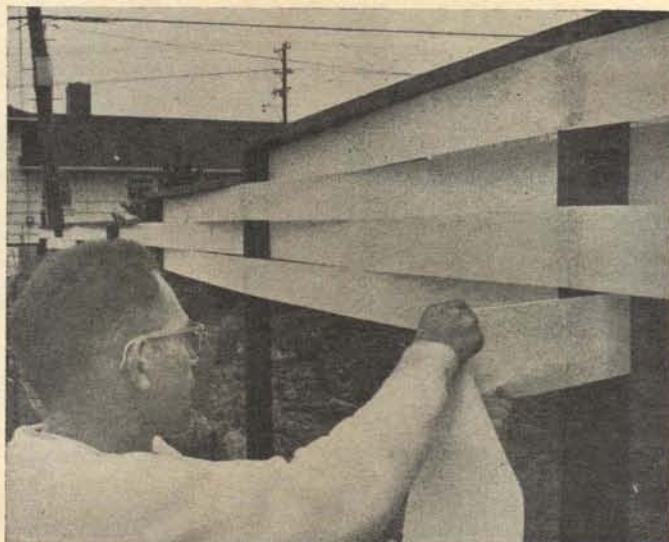
4. Instructions say strips can be stretched maximum of 90 ft., it was necessary for this installation to staple to each post, smaller strips.



5. Many different designs can be produced with Weblite fencing. Here is one pattern in which vertical strips are stapled to frame.

the posts to resist the strain of the stretched material, Fig. 1. Cedar posts, or aluminum ones also could be used. Fitting the material requires only that it be stapled to a post, the excess cut off, Fig. 2, then the end doubled and stapled again, Fig. 3. The material can be stretched a maximum of 90 ft. before stapling, according to instructions. The installation shown is subject to frequent high winds, and it was necessary to staple the strips to each post, Fig. 4. In Fig. 5 is shown one of the many alternate patterns that can be produced with Weblite. At top and bottom a 2 x 4 on edge permits stapling the material to opposite sides. A length of 2 x 2 then is nailed over the stapled ends.

The material is amazingly strong and can be pulled tight, Fig. 6, before stapling. It does not sag with age, but tightens instead. You will note in the lead photos that smaller strips are fitted between the posts. These are redwood tomato stakes picked up at a local lumberyard at low cost. They are approximately 1 x 2 in., and the ends were driven into the ground a couple of inches, the upper ends held by a wood screw driven down through the top 2 x 4. A driving snowstorm did not bother the material, nor did wind and rain. Dust blown onto the rain-soaked material was quickly washed off with a garden hose. Weblite can be purchased from dealers, or the company. See Mfrs.' Directory. Δ Δ



6. Plastic strips are easy to handle, can be pulled taut with little effort. Material is amazingly strong, does not ravel when cut, is easily cleaned.



With the cover up sizzling steaks and hamburgers can be cooked in a jiffy. The fold-down shelf at end is handy for utensils, seasoning.

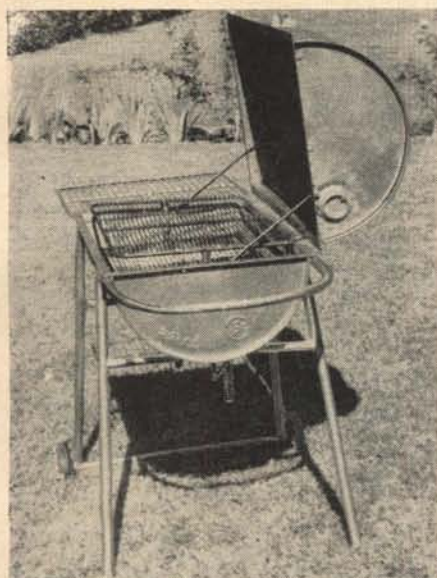
BARREL BARBECUE

VINCIL WARREN

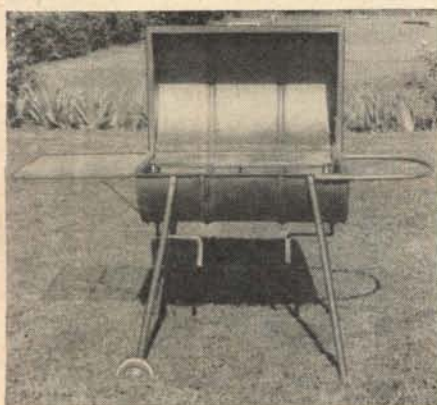
BASED ON a 30-gal. steel oil drum, (50-gal. for larger unit), this portable barbecue will handle even large parties. When open it is a fine grill, when closed it's a "smokehouse". Drums vary in size, so measure yours before cutting and bending the angles that are bolted or riveted to the edges. Note in the first photo that the upper half of the drum has been notched to accommodate a rotisserie. A notched steel flat supports one end of the spit, a drilled plate the other. To raise and lower the grill, cranks are shaped from threaded rod and turned in nuts

welded to lengths of pipe. These pipes are welded to the drum as indicated. Grills on the original were discarded refrigerator shelves; they also can be fabricated. In the drawing are indicated two types of handles for lifting the top. One is bent from steel rod, the other consists of short sections of angle with a rod between. The steel pan used for the firebox should be floored with sand or firebrick to assure longer life.

Prepare the finished barbecue by cleaning and sanding the metal, then priming with zinc-chromate. Metallic-copper paint is ideal finish. △ △



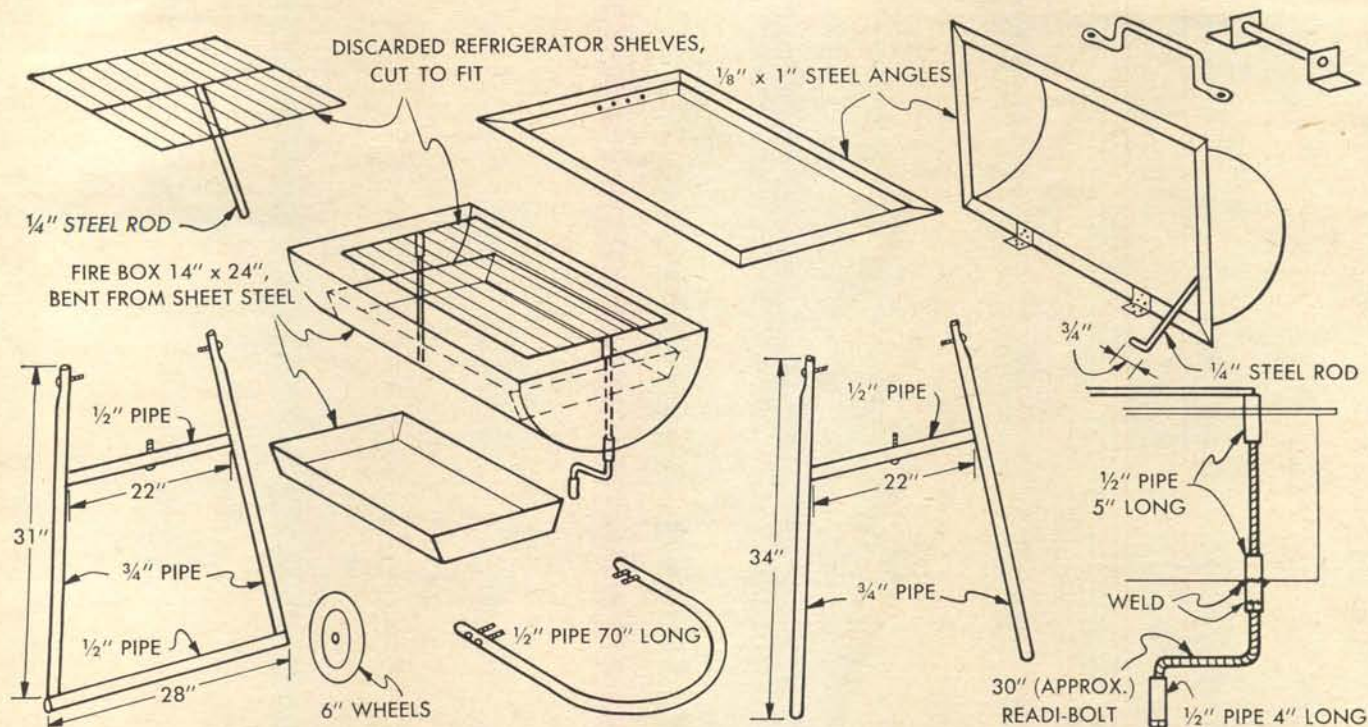
Raised cover makes fine windbreak, barbecue can be moved easily to position cover against wind. Large loop handle stays cool.



Looking at barbecue from front indicates positions of two cranks that raise and lower grill, and the slant of legs at each end.



When top is lowered, shelf dropped, unit is neat, easy to store. Top keeps out weather, also makes it possible to smoke meats rather than cook them.



MAKE YOUR CAR SAFER

WHY AN ARTICLE about safety belts in WORKBENCH? Safety is everybody's business, and we want our readers alive and well. According to the Travelers Insurance Co., while deaths from automobile accidents increased only one per cent last year, injuries increased by seven per cent,

to a total of 3,000,000. Seat belts will help prevent those injuries; they can reduce the number and severity of injuries by almost 60 per cent. That percentage figure is not a guess. It has been proven out by police, truck drivers and passenger-car owners who wear the belts every moment they are in a car.

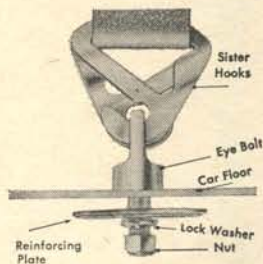
In 1962 all automobile manufacturers will include belt brackets as standard equipment. The U. S. Public Health Service, the American Medical Association and the National Safety Council all are spearheading a drive to educate automobile owners to the many advantages of belts.

The belts are not uncomfortable; they actually make driving easier and more relaxing. Belts, such as



Safety seat belts, such as this one made from Chemstrand nylon, reduce injuries from accidents, reduce fatigue by keeping a driver firmly in place behind the wheel.

the "Royal Traveler," shown in the installation photos, made by Hickok, are available in a variety of colors and are washable. $\Delta \Delta$



Installing Hickok "Royal Traveler" belts requires only a $\frac{3}{8}$ -in. drill, pliers and a wrench. Installation takes only a short time.



After holes are drilled in floor, eyebolt is dropped in place, reinforcing plate and lock washer are slipped on bolt and nut is turned on.



When bolts are in place, "sister hooks" on each belt are fitted in eyes. Sister hooks permit easy removal of belts so they can be washed.



2. Pool shown required two TAP Garden Pool kits. Making pool at lower end smaller would reduce amount of material needed. Original pool is to contain goldfish, water lilies as well as decorative rocks among which fish can find shade.



Rock-Garden Waterfall



1. First step in making waterfall-pool is to dig out pool at lower end, cut shelves in the earth, arrange rocks along what will be series of falls. Move away any plants that cannot tolerate constant moisture.

THERE IS no more natural spot for a garden waterfall than in a rock garden. Here you have the rocks that would line a natural stream, and the various levels of a rock garden lend themselves to making a series of small falls that will produce musical splashing. First step in such a project, Fig. 1, is to dig a pool at the lower end of the rock garden, of the desired size. The pool shown was made large enough for several goldfish, as well as water lilies and attractive rocks that provide shade and shelter for the fish. Two Garden Pool Kits from the Taylor and Art Co. were required for this particular waterfall-pool. Squares of fiberglass mat in the kit are saturated with resin furnished, then placed to line the pool and falls, Figs. 2 and 3. The mat was started at the top and held with rocks that became permanently embedded in the resin. The pool and falls shown was completed in the winter, showed no signs of damage from the weather, Fig. 4. A plastic

fence was placed around the yard, (the story of this fence is elsewhere in this issue), to keep animals and youngsters away from the pool. The same water is used over and over, a Little Giant No. 2 pump keeping the water circulating. The plastic hose and wire are shown in Fig. 5, but as indicated in the drawing, are hidden among the rocks and flowers when the pool is finished. $\Delta \Delta$

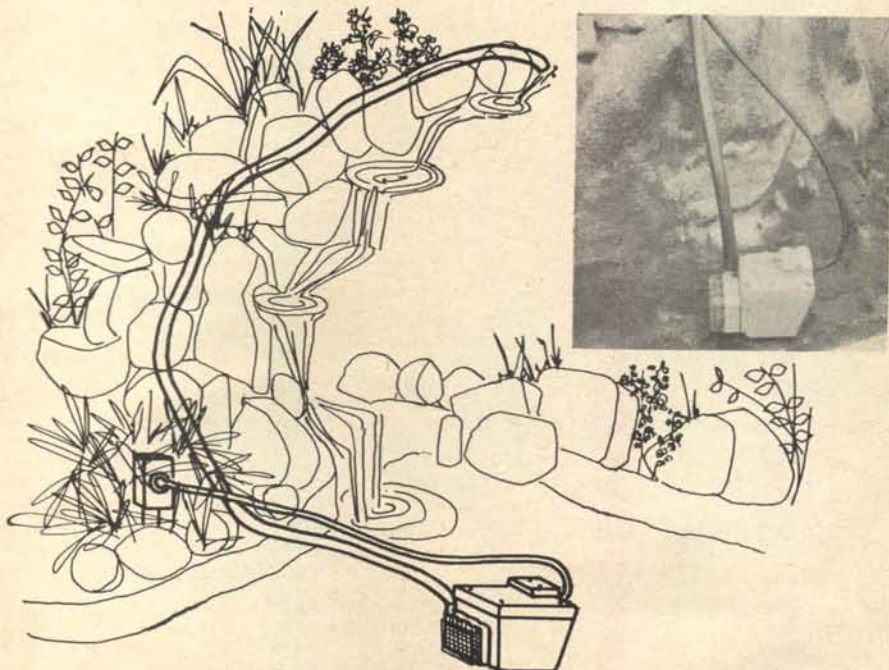
3. Squares of resin-soaked fiberglass mat were started from the top of the pool down, held by rocks, which then adhere to the material.



4. Plastic fence is built around rock garden to "frame" it, and to echo sounds of falling water. (Fence here is not finished, is described elsewhere in this issue.) Pool was completed in fall, weathered winter well; plastic flexes under ice pressure.



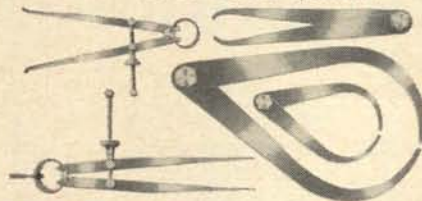
5. Little Giant pump sits in bottom of pool, wire and hose run up into planting. Pump is absolutely noiseless.



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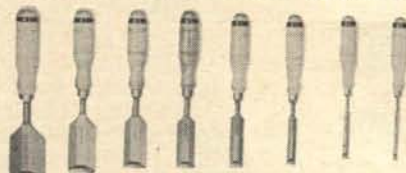


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Fiberglass Bathhouse

DESIGNED TO PROVIDE a convenient dressing room for a back-yard swimming pool at moderate cost, this bathhouse is built on a 4-in slab of concrete. Framing is red cedar, the front, one end and roof of the bathhouse are covered with translucent-fiberglass panels. The back and opposite end of the bathhouse are made of exterior-grade plywood. The translucent material allows ample light to enter the shelter, but assures privacy to persons inside. As an added measure of privacy, a fence was added along the front of the bathhouse, made of strips of fiberglass. Three colors are used, adding a touch of brightness.

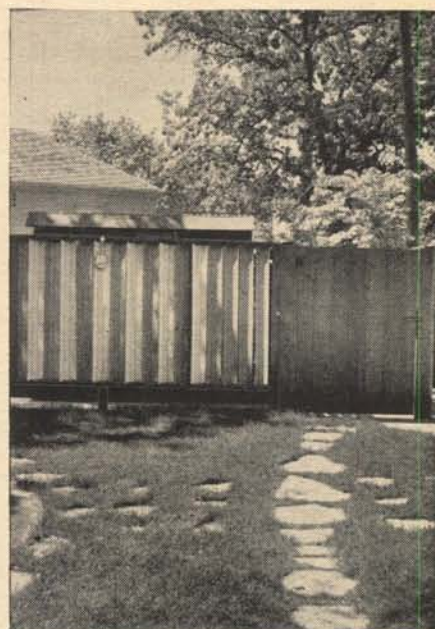
The bathhouse and fence were designed by The Building Block, Minneapolis, Minnesota, for Mr. G. P. Gooch of that city. Fiberglass is by Structoglas. △ △



Fence built of strips of fiberglass in a redwood frame provides additional privacy in front of bathhouse that is located convenient to pool.



Front and side of bathhouse are panels of fiberglass, back and far side, both against fence, and out of sight, are made of plywood.



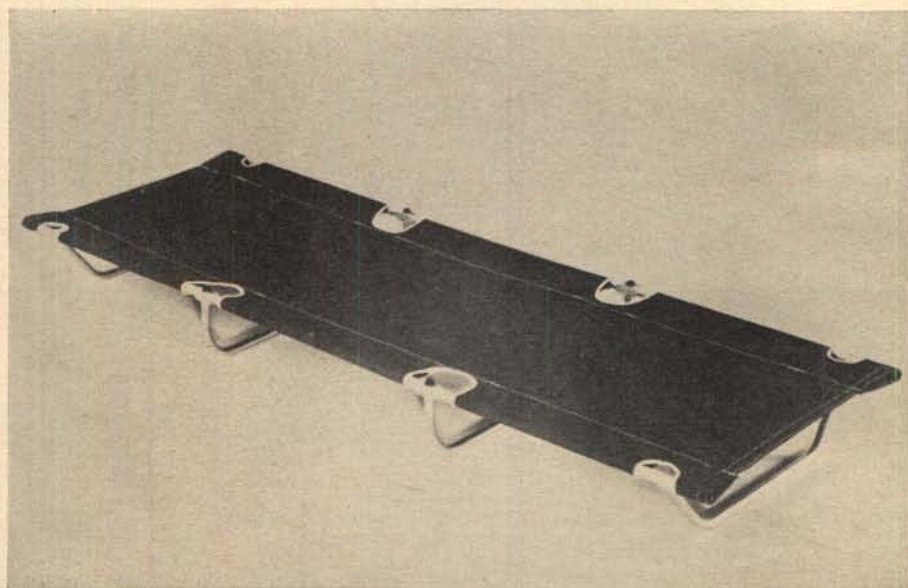
Only roof of bathhouse shows above fence in which three colors of fiberglass panels are used. Wide gate is exit from yard.

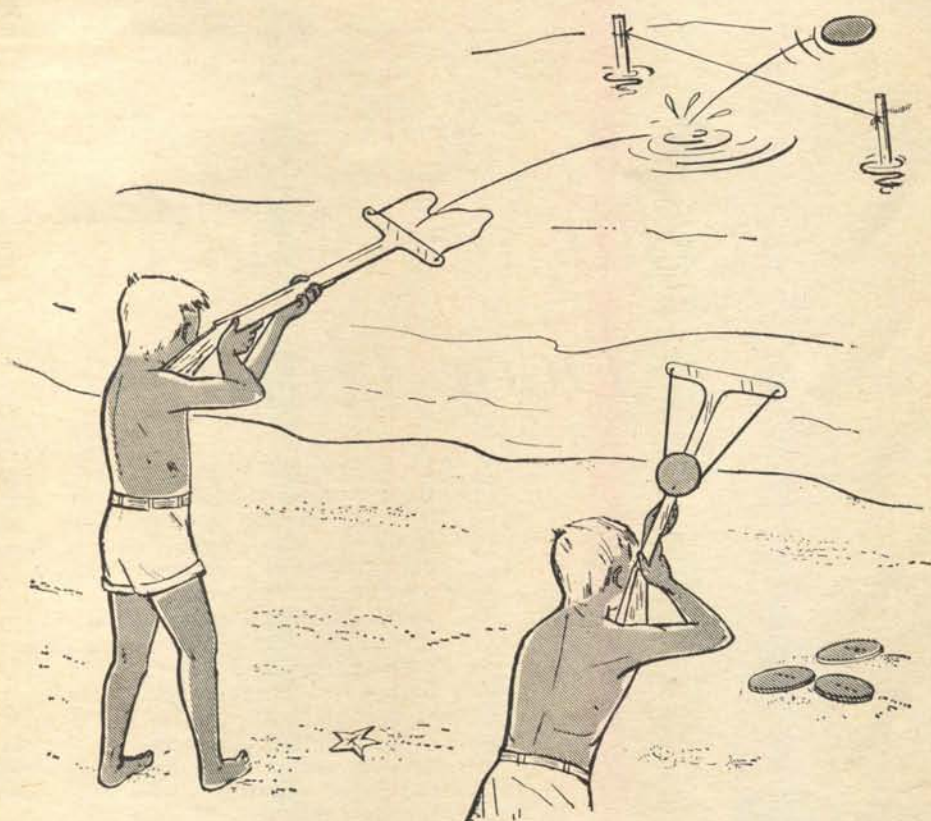
COMPACT COT

THIS "INSTANT BED" weighs just 4 lbs., and when folded is small enough to fit in a suit case, the back of a dresser drawer or rolled in a sleeping bag. It opens to a length of 6 ft.

3 in., has a springy aluminum frame 26 in. wide. The washable green cover is extra-strong duck. "Compac-Cot" is ideal to keep on hand for an unexpected guest, is great for a

"station-wagon vacation," as it takes up little space, yet can sleep a generous-size 6-footer. Priced at \$15.95 from Goode Products Co., Dept. DJ, 7542 Maie Ave., Los Angeles, Calif.





The slot in which the trigger is fitted can be made by drilling with a 5/16-in. bit, then smoothing and shaping with a wood chisel and sandpaper. You may have a small coil spring in your scrap box that can be used to hold up the trigger mechanism. If so, drill the hole for this spring the proper depth, before cutting the blind portion of the slot. The stop pin against which the trigger arm rests can be a finishing nail, the end of which is peened slightly to rivet it in place. A nail also can be used for the pivot of the trigger. A length of 1/4-in. steel rod is bent as indicated to form the trigger, and is slightly flattened to permit drilling a hole for the pivot pin. File both ends of the trigger round and smooth. The upper end of the trigger projects 3/8-in., so that it comes flush with the top of the disks. These disks are cut from 3/8-in. marine-grade plywood, drilled and grooved as shown, to fit over the trigger and to accept the rubber bands. Inner tubes, where available, can be cut up for rubber bands, or several lengths of model-airplane rubber bands can be used.

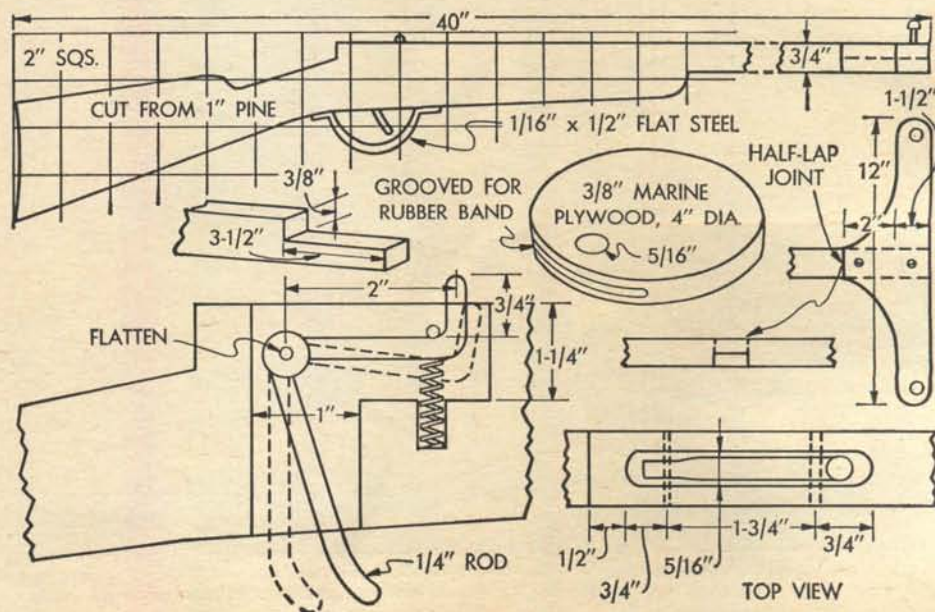
Stain the gun stock mahogany, paint the "barrel" a dull black. Δ Δ

"SKIPPER"-DISK GUN

HI SIBLEY

A MODIFICATION OF the familiar rubber-band gun that once was popular with youngsters, (before the advent of tubeless tires destroyed an endless source of strong rubber bands), this "weapon" fires plywood disks that are skipped on the water to bounce over a line stretched between two uprights. The gun provides a new kind of water sport, and adults will have as much fun as youngsters trying to control the tricky flying disks. For a swimming pool, the uprights can be two dowels floated on plywood disks. The disks can be held in place by anchors, or by light cord tied to some object on the pool deck.

Cut the gun from 1-in. pine stock, using a pattern made by enlarging the squared drawing. Round the edges of the stock, and carve the gun to resemble a real rifle. The crosspiece and barrel end are joined with a half-lap joint that is fastened with waterproof glue and screws.



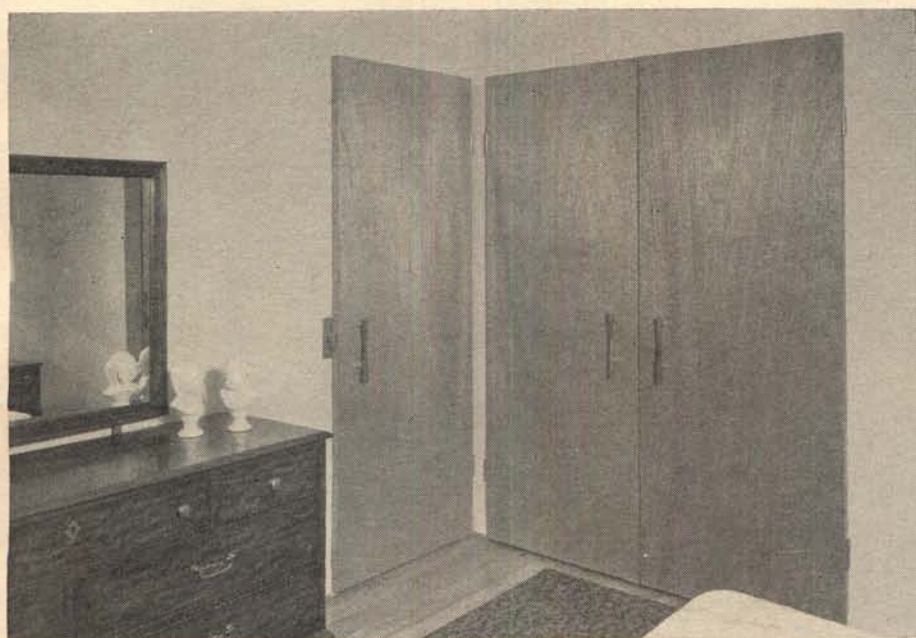
Door hung with surface-mounted hardware provides clean, modern look, as no trim or door stops are required to position it.



Surface-Mounted Door Hardware

HANGING A DOOR, which means fitting it to an opening so that it has adequate clearance, but still fits reasonably snug, has long been a problem for do-it-yourselfers. That problem now has been eliminated completely. You simply buy a door that is larger than the opening and hang it with hardware that is mounted on the surface of the wall and on the edge of the door. Regular knobs are not needed, as the latch mechanism requires no rotating or lever action for its operation. The strike on the door is engaged by a nylon cam in the latch and a constant 12-lb. pressure is applied to hold the door shut. A privacy lock is available, and an emergency release provides a means of inactivating the lock.

A really fine feature of the surface-mounted hardware is that when the door is opened at a 90-deg. angle it clears the opening completely. If you have ever moved a large ap-



Single hinged door swings completely free of opening at 90-deg. angle; fine for bringing in furniture and other large items that usually require removal of door to assure adequate clearance. Guide track of bi-fold doors on closet also is surface-mounted; easily attached.

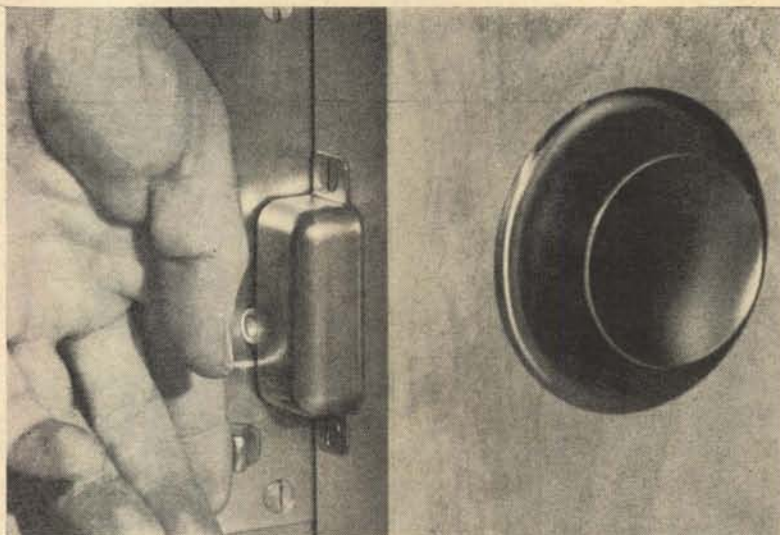


Surface-mounted hardware can be used on any indoor room in a house, operates easily for hands of young and elderly, knob is not turned.

Strike on the door is engaged with nylon cam of latch which holds door in with 12-lb. constant pressure. Privacy lock is available.

pliance or piece of furniture through a door, (and the appliance is designed to pass through most doors), you have discovered that the door must be taken off its hinges to give that added part-of-an-inch clearance necessary. "Surfaset" hardware eliminates that problem also.

Hanging bi-fold closet doors is even more tricky than fitting a single door, as the several doors must all fit in the opening without binding, yet should provide a reasonably dust-tight closure. Surface-mounted hardware now can be obtained for bi-fold doors that are track-controlled, which considerably simplifies the job of fitting doors of this type. Surface-mounted hardware is made by the Stanley Co. Δ Δ



Surface-mounted hardware also is available for track-controlled bi-fold doors, such as are ideal for providing access to large closet.

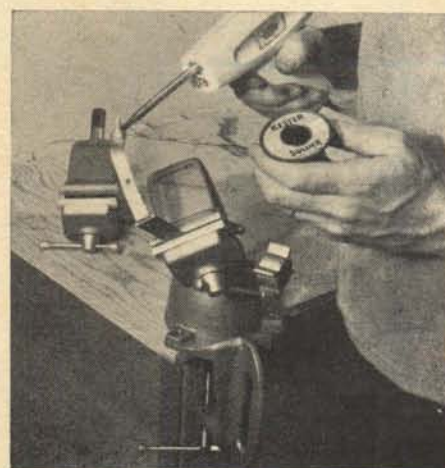


Because no knob or handle is required to be turned to actuate mechanism, great variety of pulls can be used, as shown by this type.

ALL-POSITION VISE

If you have ever had to jury-rig a clamp to hold a piece of work at an odd angle, the Panavise will appeal to you. Consisting of a base that can be bolted to a bench, (a clamp to which the base can be attached, as shown in the photo, is available to permit moving the vise where it is needed), and a removable head, the unit weighs just 3½ lbs. The vise

head can be rotated 360 deg., on any tangent to a half sphere, or tilted a full 180 deg. front and back. In addition, the locking mechanism can be rotated 360 deg. around the base. Nylon or steel jaws are available for either head; one has an in-line shank, the other at right angles, as in the photograph. Panavise is \$14.95. See Mfrs.' Directory





MATERIALS LIST

Solid Stock, 1" Surfaced White Pine

A, Sides (glue up), 15" x 20½", 2 req'd.

B, Drawer Guides, ¾" x 13½", 4 req'd.

C, Side Cleats, ¾" x 8", 2 req'd.

D, Legs, 6¼" x 9", 4 req'd.

E, Leg Blocks, 5" x 11", 2 req'd.

F, Bottom of Cabinet (glue up), 15" x 18½", 1 req'd.

G, Top of cabinet (glue up), 15" x 18½", 1 req'd.

H, Back and Lower Front Galleries, 1½" x 18½", 2 req'd.

J, Drawer Fronts, 4" x 18½", 2 req'd.

L, Drawer Backs, 3¼" x 16½", 2 req'd.

O, Drawer Runners, ¾" x 13½", 2 req'd.

Plywood, ¾" Fir

I, Backing, 18¼" x 20", 1 req'd.

K, Sub Fronts, 3¼" x 16½", 2 req'd.

M, Drawer Bottoms, 13½" x 16½", 2 req'd.

N, Drawer Sides, 3½" x 13½", 4 req'd.

Miscellaneous

White liquid resin glue

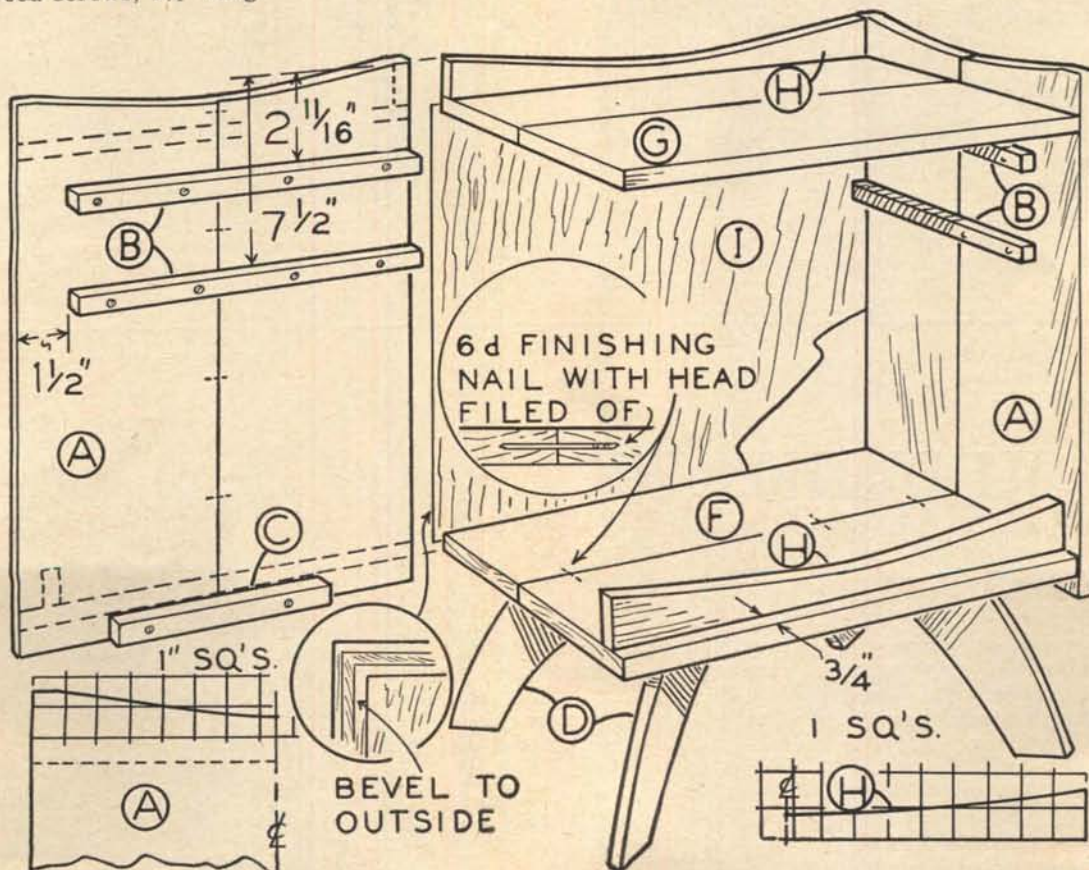
6d finishing nails, 1" brads

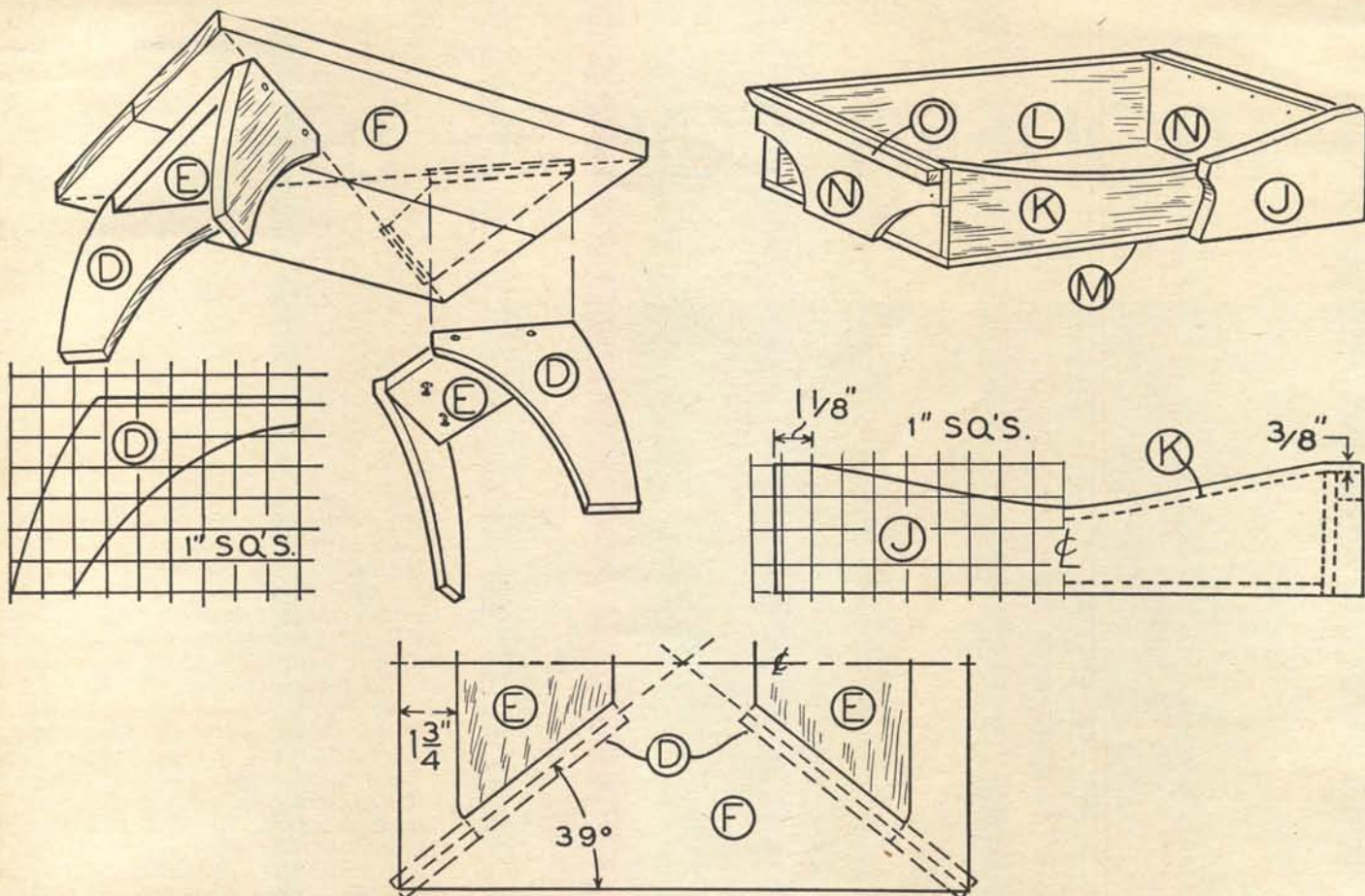
No. 8 FH wood screws, 1¼" long

Wood filler

Contemporary Night Stand

ROBERTA FAIRALL





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For name of nearest dealer, consult the YELLOW PAGES.

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Springdale, Pennsylvania



MODERN COFFEE TABLE

JACK CORNISH



Secret of the smooth, graceful lines of this coffee table is the complete absence of sharp edges, all being rounded, joints faired together smoothly.

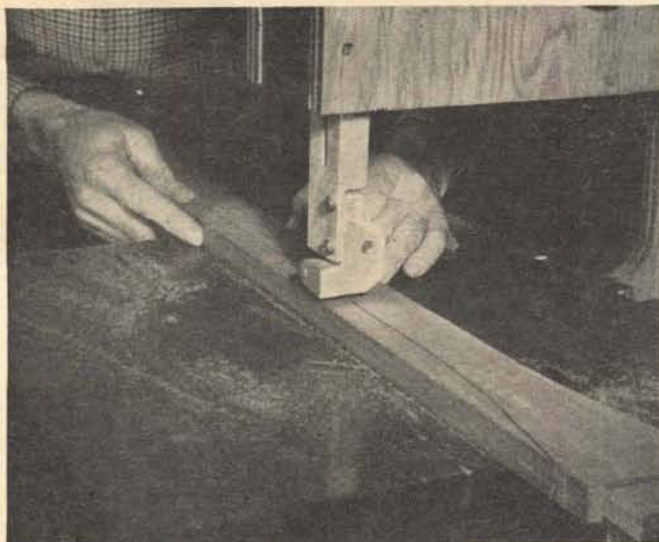
JUST A FEW BOARD FEET of hardwood, (walnut for the original), are required to make this attractive table. Construction is quite simple, mortise and tenon joints being used between the stretchers and legs. The tenons are cut on the stretchers before they are sawed to shape, so a table or radial-arm saw can be used for the job. The tenons are cut in the legs by drilling a row of $\frac{1}{2}$ -in. holes, then cutting out the wood between with a wood chisel.

Legs for the original model were turned from stock $1\frac{3}{4}$ in. sq. and 14 in. long. By carefully centering the stock in the lathe it was possible to produce flats $\frac{3}{4}$ in. wide on the upper $4\frac{1}{2}$ in. of the legs. If you have no lathe, purchased tapered legs could be used. Flats would have to be planed and filed to permit a close joint between the legs and ends of the stretchers.

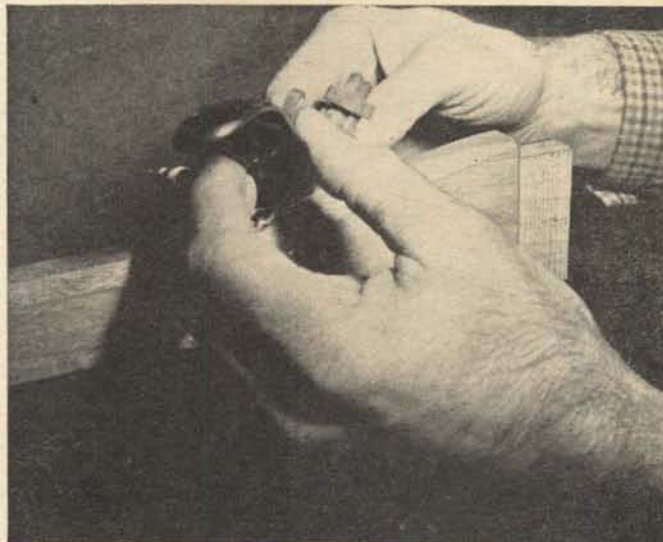
The table top is made by edge-gluing strips of stock, then sanding the ends round as shown. The side pieces for the top are cut from $\frac{1}{2}$ -in. stock, roughed to shape, then glued in place. When the glue has set the side pieces are shaped and faired to match the ends of the table top.

Note that the short cross members between the legs also require a mortise-and-tenon joint. The ends of both these members and the stretchers should be cut accurately, and the flats on the legs should be parallel to the axis of the legs so that all joints are tight, and the legs all are positioned vertically against the top. Glue is used for all joints. Only four screws are required and they are driven up through counterbored holes in the end cross members into the top to hold it.

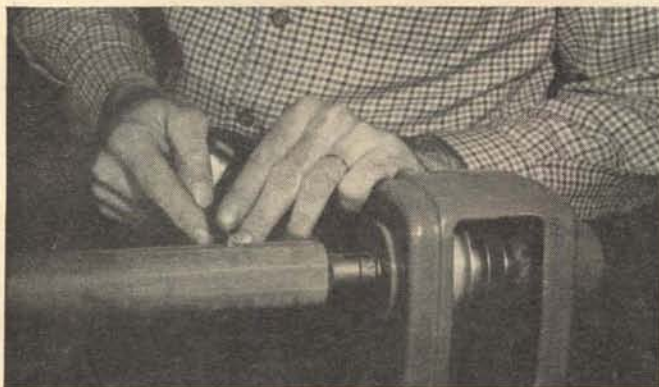
As with any project, the finishing of the wood is what will give your table that professional look. Sand all surfaces well, apply stain and sealer, then good varnish or shellac. A number of our advertisers sell top-quality finishing materials, and complete instructions are provided with all these quality products. $\Delta \Delta$



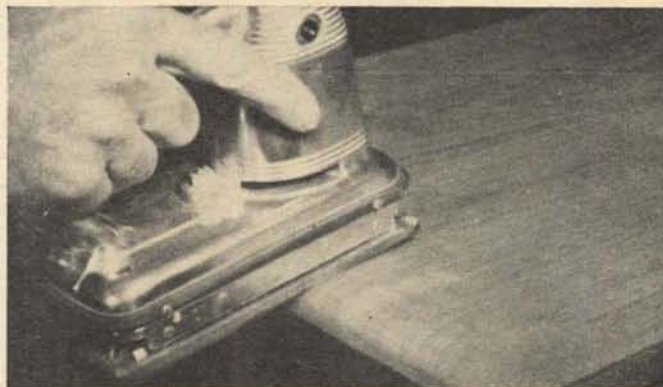
Tenons are cut on stretchers before they are cut to shape, which permits using circular saw for job. Band saw or jig saw then cuts them to shape.



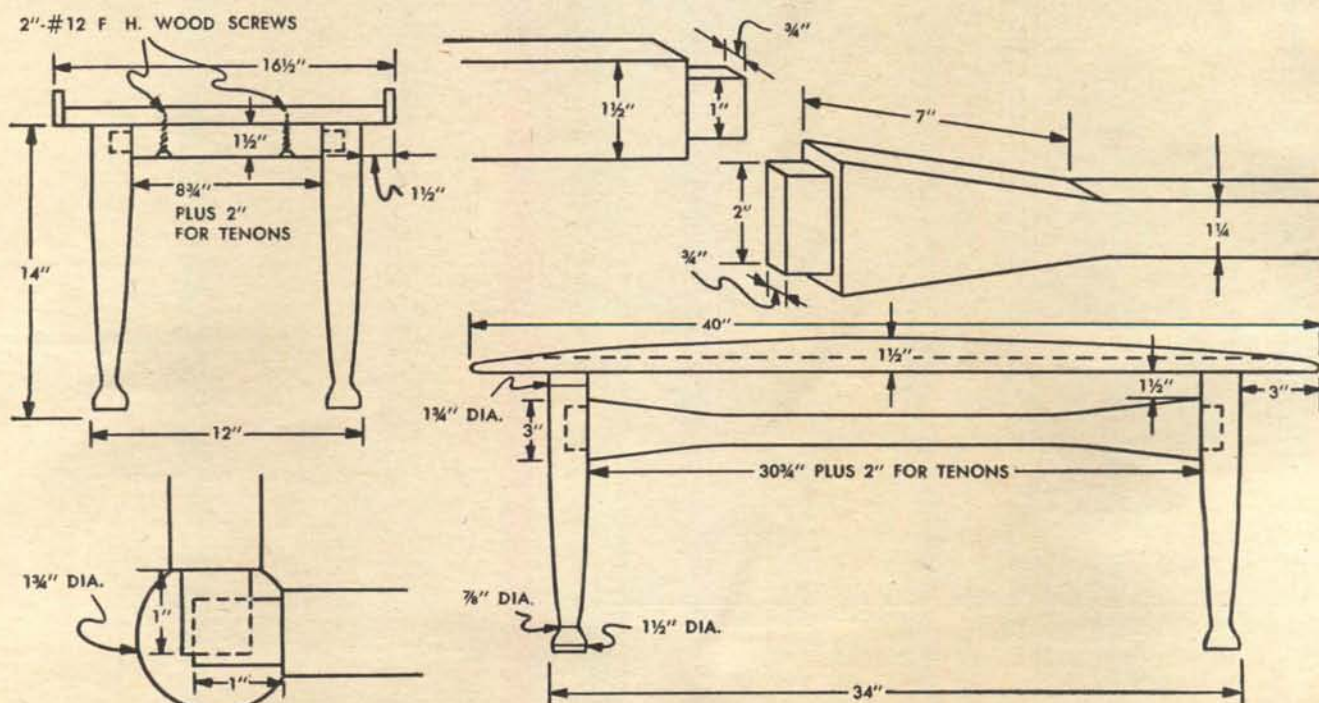
Spokeshave is handy tool for rounding edges of stretchers, but regular plane plus a rasp and sandpaper will do job just as well.



Legs are turned from stock $1\frac{3}{4}$ in. sq. and 14 in. long. Center stock accurately so that $\frac{3}{4}$ -in.-wide flats are left on the upper ends.



Completely sand and round off ends of table top before attaching side members. Latter are then sanded and shaped to fair into ends of top.



FOLDING-CHAIR BUFFET

C. L. WIDDICOMBE

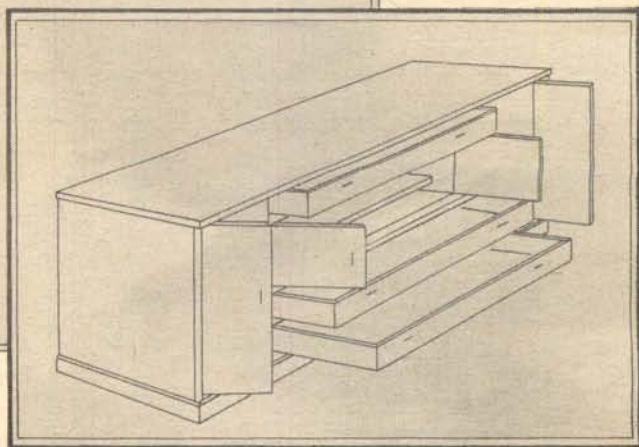
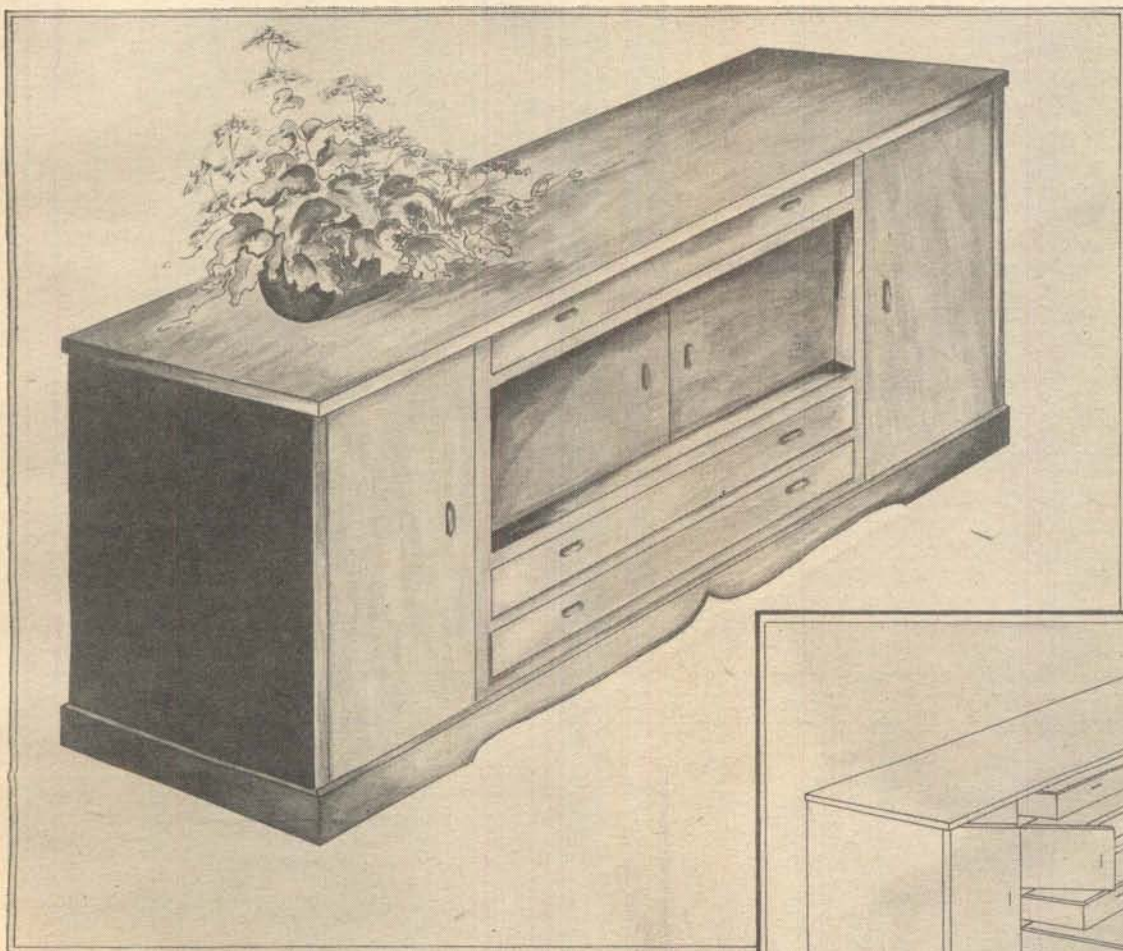
AS PROMISED in the last issue, here is a storage cabinet for the "Folding Dining-Room Chairs," that were designed to go with the "Expandable Dining-Room Table," (Sept.-Oct., 1960). More than just a place to hide the chairs, this buffet also has drawers for table linens and silverware, as well as shelf space for large plates and oversize platters.

Construction has been kept simple, dado joints being used throughout. The ends of the cabinet extend to the floor, with the base trim attached for better design. The front trim is lapped $\frac{1}{4}$ in., and reinforced with a

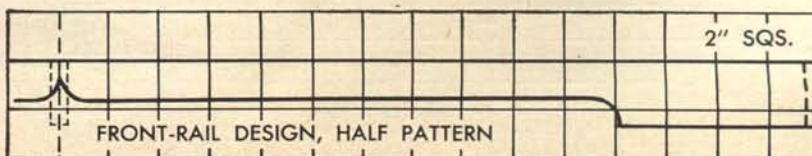
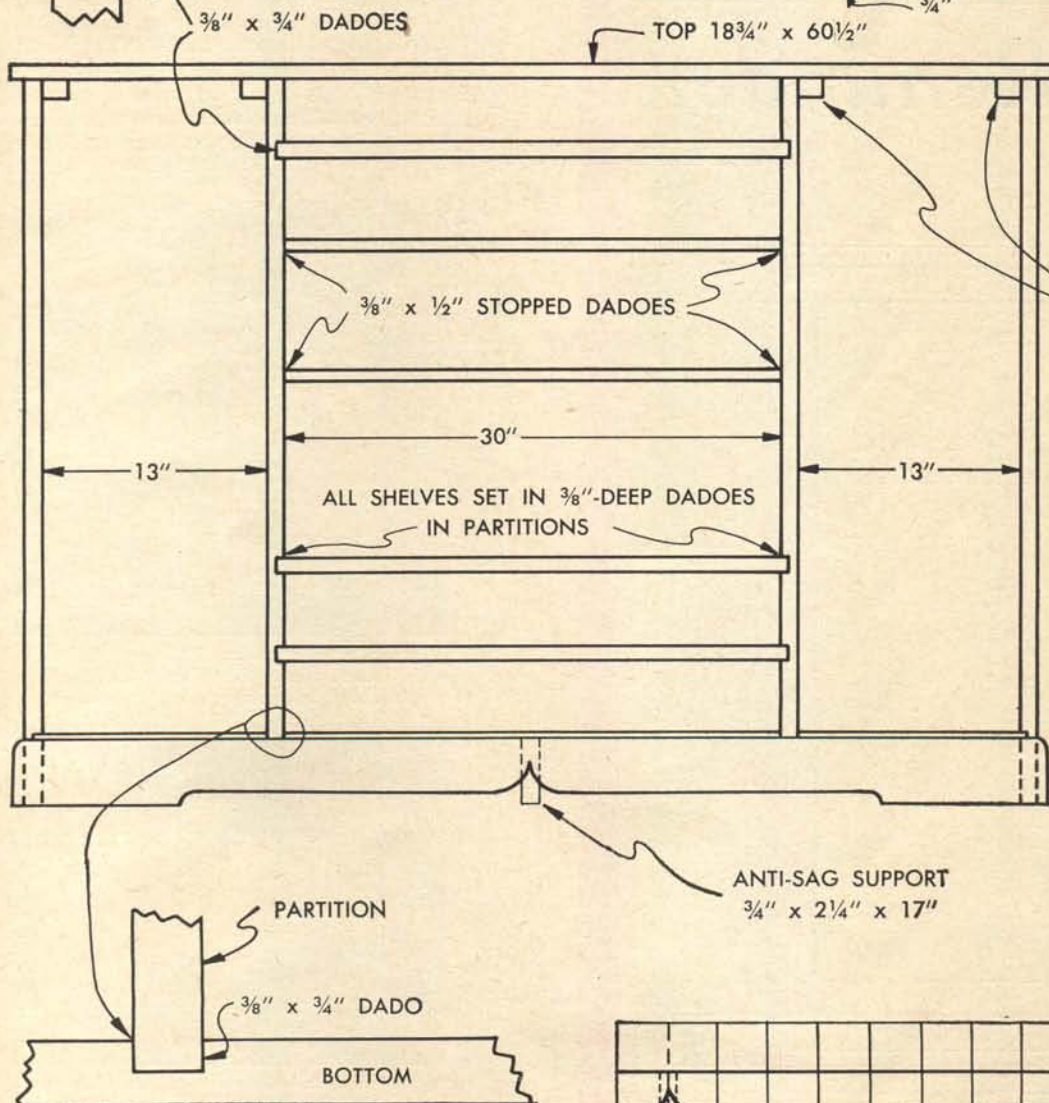
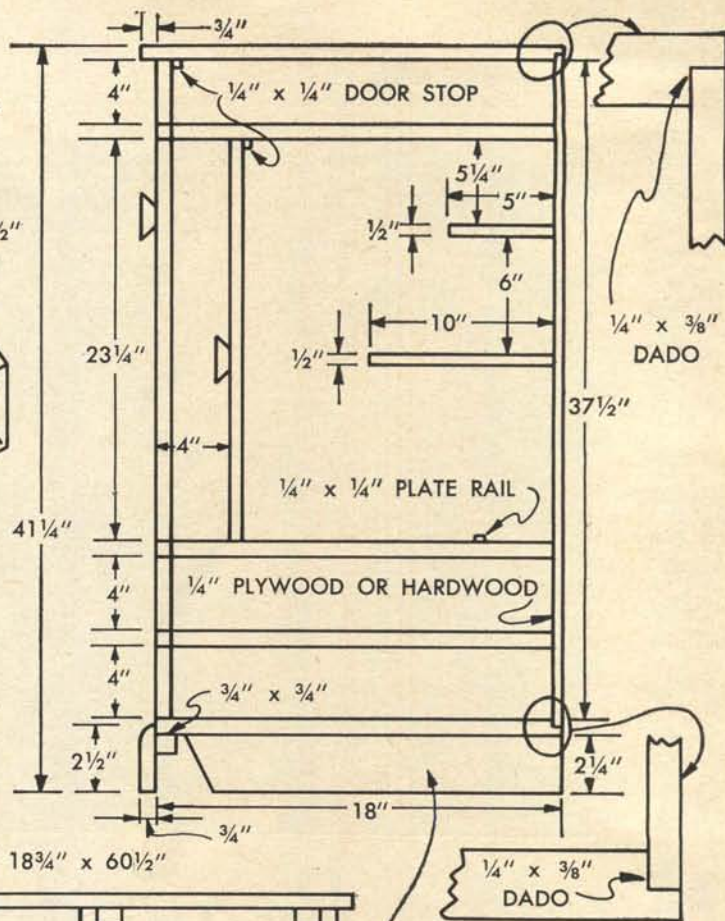
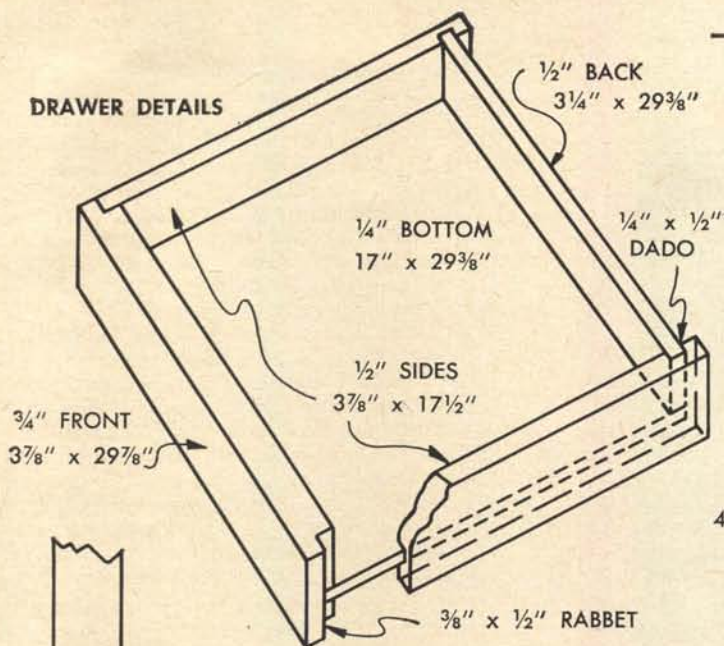
$\frac{3}{4}$ x $\frac{3}{4}$ -in. strip glued and nailed to the underside of the cabinet bottom and to the trim. The front trim is shaped to be compatible with the chairs and table; the squared drawing shows how this is made. The center doors of the cabinet are recessed 4 in., as indicated. A $\frac{1}{4}$ x $\frac{1}{4}$ -in. strip running the full width of the center compartment acts as a door stop. Similar stops are used for the side compartments in which are stored the folding chairs.

Choice of wood is up to the builder; in most cases it should match that used for the chairs and table. Ply-

wood is recommended, hardwood-faced plywood being ideal. The end grain can be concealed with veneer tape of a type to match the surface of the plywood. The back of the cabinet is shown to be either hardboard or plywood. If the cabinet is used as a room divider, this should be the same type wood as used for the top and ends. For you craftsmen who like to work with veneers, here is an item of furniture that presents a real opportunity to display your skill in applying veneer to plain fir plywood to produce an item with the look of expensive, solid hardwood. Δ Δ



DRAWER DETAILS

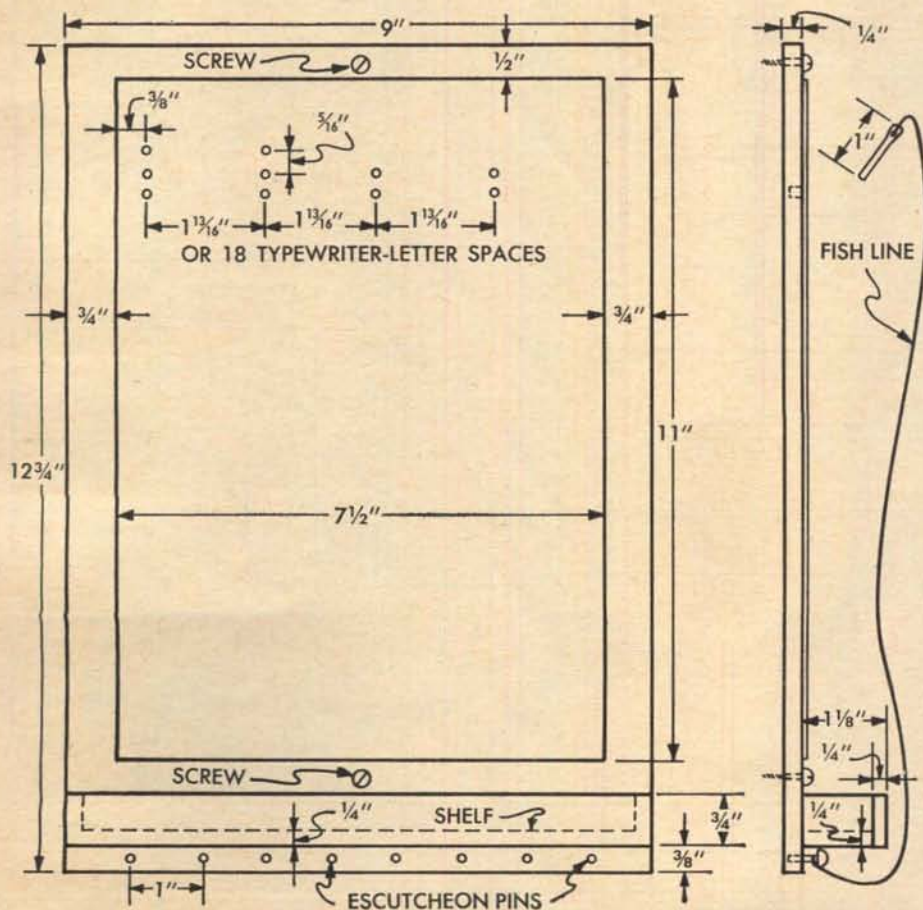


No need to hunt for pencil and paper when a grocery item is used up; simply "plug in" the item. At the end of the week a list is made quickly and the plugs are pulled.



Kitchen Reminder

WALTER E. BURTON



MAIN ADVANTAGE of this reminder board is that whoever in the family uses the last of the cereal, bread or other food item, simply can "plug in" a reminder to purchase the item. When Mom makes up her grocery list she then can copy from the board, pulling the plug from each item as she writes it on her list.

You will note that on the original the food items are listed alphabetically; best to check with the boss about this, if she shops in a supermarket she will want the list arranged to match the various departments in her store. The first items on the list should be the first items she passes in the store, and so on. Whoever you have type the page should allow a 3/8 in. margin at the left side of the page, and start each line with a period. The periods are used to locate the blind holes in which the plugs are fitted. Plugs for the original were 1-in. lengths of 8d aluminum flooring nails. One end of each being hammered flat and a small hole drilled through it to receive the fish line.

A row of eight brass escutcheon pins are arranged across the bottom of the board under the "trough" in which are kept spare plugs that are not held with fish line. The eight plugs are sufficient for average reminder lists, the other plugs are used to fill out a list. After the paper has been cemented to the board, spray with clear plastic or shellac. △ △



After the paper is cemented to the board, holes are drilled to receive the "plugs." Hole locations are indicated by typing period, as shown.



Lengths of cords are determined by plugging in the pins in holes at extreme end of board, then running fish line to them, tying tight knot.

Expandable Book Ends

FRED STEBBINS

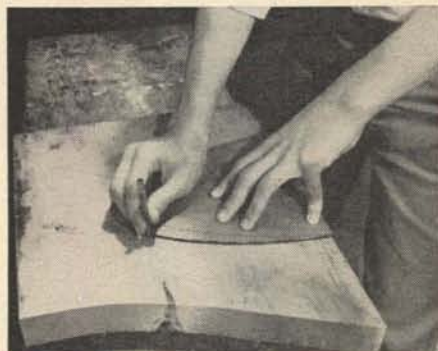


1. Size of the book ends can be varied to suit the sizes of the books to be held. The weight of the books themselves keep the ends in place.

MOST BOOK ENDS ARE ATTRACTIVE, but do not do their job too well. Removing and replacing books will slide them apart and permit the remaining books to fall over. The units described here will stay in place, and the more books they hold—up to a point—the more firmly they will hold those books. Best of all, the book ends can be made in one evening in the shop.

Secret of the advantages of these book ends are the lengths of $\frac{1}{8}$ x $\frac{3}{4}$ -in. aluminum screwed to the bottoms. The aluminum flats on one

unit are spaced to fit between those on the other. This assures that the ends remain parallel to each other, and the weight of the books on the flats keep them in place. Stock for the ends should be a minimum of 2 in. (approx. $1\frac{3}{4}$ in. finished) to provide enough area to accept the screws that hold the aluminum flats. The design of the ends can be whatever you wish. The original book ends, as shown, were oval-shaped with flat bottoms. The band saw was set at a slight angle to give a more pleasing shape. Size can be changed

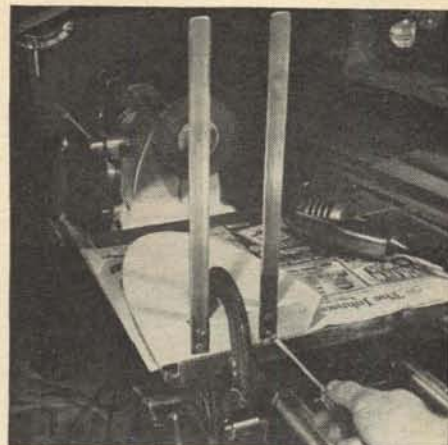


2. First step in making the book ends is to determine the shape. The pattern is drawn on cardboard, then traced onto the stock.

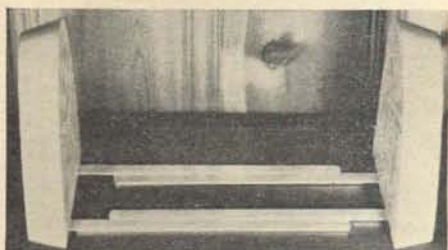


3. Angle of cut was 21 deg., this can be varied to suit. A band saw was used on the original ends; with care a coping or jig saw can be used.

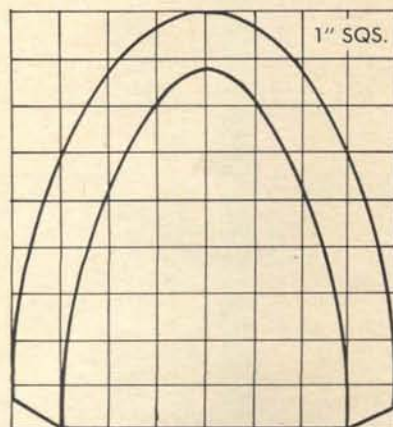
to suit; the book ends shown were designed to hold large books and catalogs. The aluminum flats also can be any length. Those on the original allow a minimum spacing between the ends of 12 in.; the maximum depends only on the length of the surface on which they are placed. It is recommended that the minimum length of the flats be 6 in. Anything less than that will not accommodate enough books to provide sufficient weight to keep the book ends in place. For a personal touch the book ends can be "monogrammed" with a router, or initials or a figure can be hand carved on the wood. The book ends are an excellent gift idea, and fine as a project for a beginning craftsman. $\Delta \Delta$



5. Clamping the book ends to a work surface permits using a try-square to keep the aluminum flats, set in recesses, at right angles to the ends.



6. These completed book ends show how the aluminum flats on one fit between those on the other, which helps keep the ends aligned.



$\frac{1}{8}$ x $\frac{3}{4}$ ALUMINUM FLATS

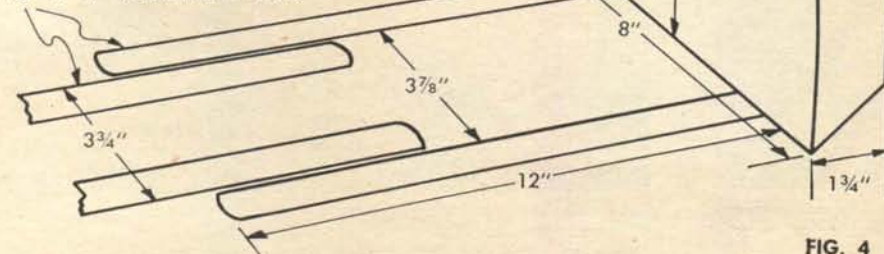
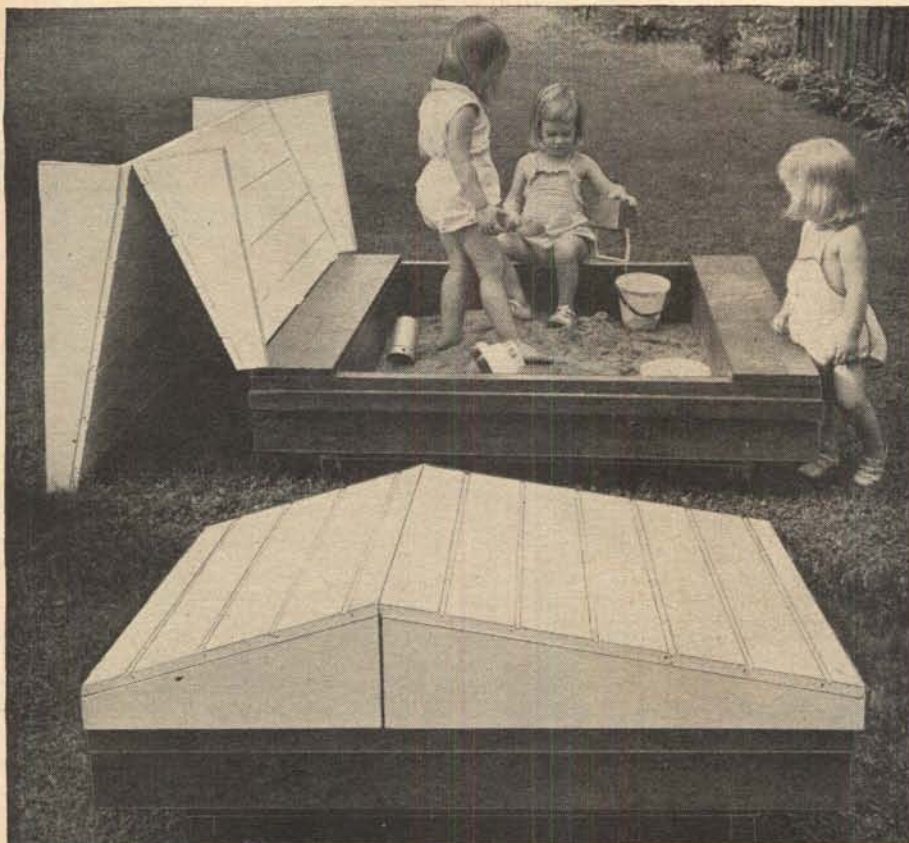


FIG. 4



1. When the top is folded back it becomes a back for the seat, when closed the top completely covers the box, keeping out rain and weather, as well as animals.

Self-Covering Sandbox

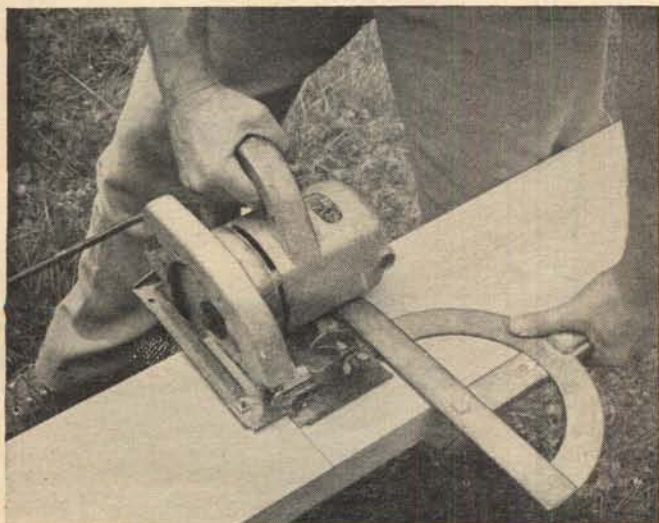
Photos and information courtesy Western Pine Association

MATERIAL LIST AND CUTTING SCHEDULE

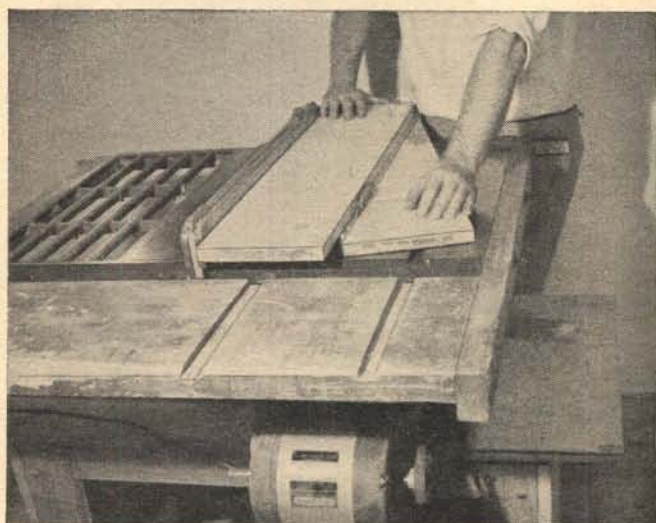
1—Douglas fir 2 x 8, 16', cut 2 pcs. 51¼", 2 pcs. 44½"
 1—Douglas fir 2 x 4, 12', cut 3 pcs. 46" with diag. ends
 1—Idaho white pine 1 x 12, 9', cut 2 pcs. 7⅝" x 47¾"; cut 2 pcs. 2" x 51¼"
 1—Idaho white pine 1 x 8, 6', cut 2 pcs. 31½"; cut 2 pcs. 20"
 8—1 x 6 T&G sheathing, 8', cut 8 pcs. 49¾"; cut 8 pcs. 39¼"
 1—1 x 6 T&G sheathing, 16', cut 3 pcs. 49¾"; cut 1 pc. 39¼"
 3 prs. galv. butt hinges, 3" x 4"
 1 lb. 8d galv. or alum. finishing nails
 1 lb. 6d galv. or alum. finishing nails
 1 lb. 16d galv. or alum. common nails
 Wood preservative
 Paint (including undercoat) or penetrating pigmented sealer

DIGGING IS ONE OF THE PLEASURES of childhood, and almost every home has a sandbox in the back yard to accommodate this childhood urge in the cleanest possible manner. Purchased sandboxes too often are not large enough, are flimsy in construction and cannot be covered properly. This latter factor is a particularly serious drawback, as it is important to keep rain, leaves and animals out of the sand. The usual canvas top, meant to slide down its supporting poles, can be difficult to close.

The sandbox illustrated in this article, Fig. 1, is strongly made from construction-grade Douglas fir lumber and Idaho white pine shelving and sheathing. Other species of lumber from the western-pine region also will work well, and these ma-



2. Handsaw, portable electric or table saw can be used to cut lumber for sandbox. If a portable electric saw is used, a protractor or other device should be employed to assure accurate right-angle cuts.



3. If you have no taper jig for your saw try this stunt: Nail a piece of stock with one edge parallel to the line to be cut, and an inch or two away. Hold the stock against the rip fence as indicated.

terials and hardware and nails are available from local building-supply dealers and lumberyards. The sandbox is big enough for a number of youngsters to play in, and strong enough to stand up under their rough-housing. When folded back, the top serves as a windbreak and a seat back. In the folded-down position, the cover provides plenty of protection for the sandbox, and is rugged enough to permit children to sit and climb on it.

The sides of the cover are cut from a single piece of lumber, Fig. 8, and a simple trick, Fig. 3, assures accurate angles. Nail the longer pieces of 2-in. stock to the shorter with 16d common nails, Fig. 4, and use finishing nails for the 1-in. lumber and sheathing, Figs. 5 and 7. When fastening the three 2 x 4s that are used for bottom supports, drill three equally-spaced holes in the bottoms of the two outside members, going about half-way through the stock. Drive 16d nails through these holes, using a punch to set them snug, Fig. 6 into the 2-in.-stock sides.

Bevel the ends of the bottom-support pieces and treat them with wood preservative. Note that the center support is attached by nailing through the bottom of the box. The completed sandbox should be painted or stained to match or contrast with the house as desired. $\Delta \Delta$



4. Assemble box frame with 16d galvanized or aluminum nails. Set shorter pieces inside with edges flush with edges of seat. Use seat as guide or set 6 in. in from ends.



5. After nailing on seats, turn box over and nail T&G sheathing to bottom. Tongue on first strip is ripped off, board projects over edge of frame just $\frac{5}{8}$ in. Use 8d nails here.

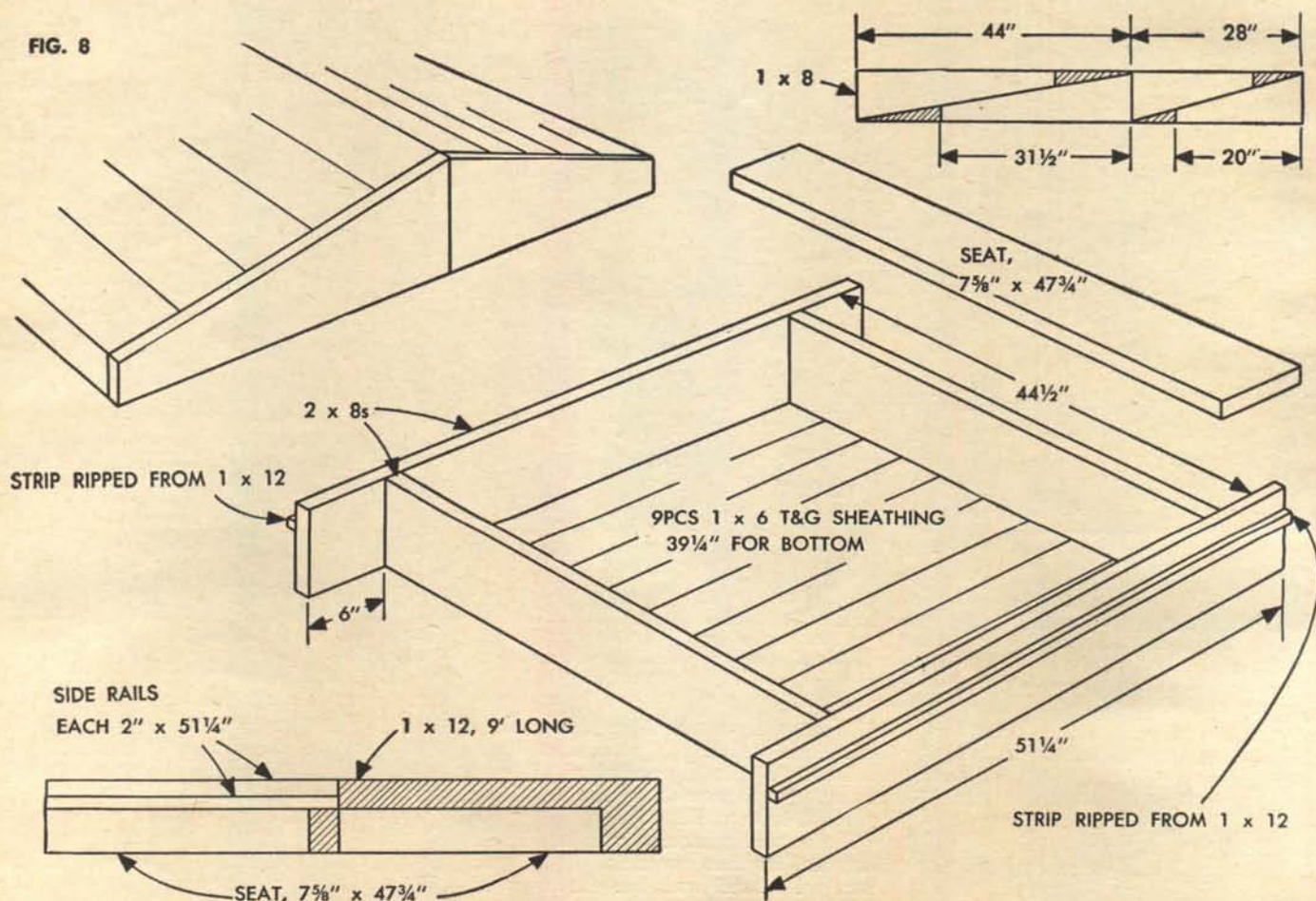


6. Drill three equally-spaced holes, slightly larger than heads of 16d nails, halfway through edge of two of the bottom-support pieces. Drive 16d nails into frame of box, with aid of punch.



7. Rip one of the pieces of sheathing with angled edge, nail it to peak of shorter pair of sides of the top. Strip with tongue goes on edge of longer pair of sides.

FIG. 8





Impact wrench is fine for tapping. Only abuse or carelessness is likely to break a tap, as the wrench rotates slowly under load and the clutch releases and impacts when tap jams. "Rapid Tap" speeds tapping operation.

IMPACT WRENCH



Blades for regular and recessed-cross slot screws can be chucked in the wrench for fast assembly and disassembly of machinery, furniture and boats. Impact action of wrench will shock loose screws that are "frozen" with rust or corrosion, will drive wood screws and machine screws solidly.

GENERALLY CONSIDERED as a tool for removing and driving nuts and bolts with electric power, an impact wrench actually has many more uses. The unit we tested in the Model Shop is manufactured by the Thor Tool Co., and when provided as a kit is called the FarmTool. The

kit comes in a metal carrying case and consists of the motor, several sockets, a blade for straight and recessed-slot screws, a sanding disk and a 2-in. wood bit.

Various accessories are available for the impact wrench. One such item we tested was the earth auger

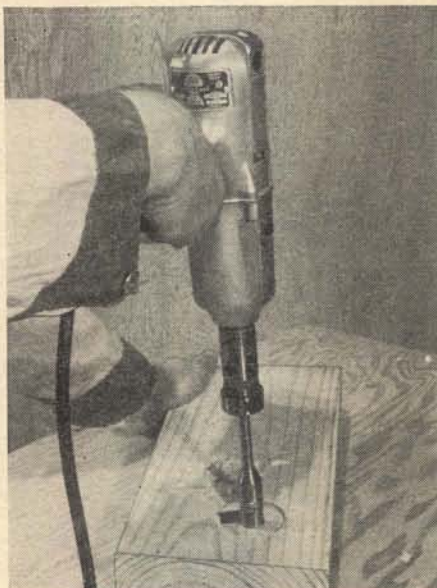


When the wrench leaves the shop or garage it still feels at home. Here it drives a 3½-in. earth auger, can pull it 30 in. down.

that permits drilling a post hole 3½ in. in diameter and about 30 in. deep. While the hole produced is slightly undersize for the 4 x 4s we were setting, especially as concrete was to be poured around them, the auger did save a whale of a lot of work.

The reversing feature of the impact wrench is utilized for tapping, as well as for driving and removing nuts and bolts. While making the test of the wrench for the tapping operation we ran across an unusual product that is fine for tapping whether you use a power or hand tool. It's called Rapid-Tap and just a couple of drops seems to double the cutting speed and ease of the tap. The address of the manufacturer is in the Mfrs. Directory at the back of this issue; we have written to them, but as of this date have received no information. The material can be purchased at most hardware stores.

While the impact wrench produces a tremendous torque that drives a 2-in. bit through wood, a 3½-in. auger through earth and removes and drives stubborn nuts and bolts, the torque never gets back to the operator's hand. This means that almost all operations with the tool can be done with one hand. $\triangle \triangle$



Expansive bit in a regular drill motor may give a little trouble, require firm control. With FarmTool it is a one-hand operation, no strain.



You wouldn't want a 2-in. bit to "hang up" when you were reaching at arms' length, as here. Impact wrench does not kick back.



Driving hole saws is another job impact wrench does well. It has ample torque to twist the saws through wood, yet does not transfer torque to operator. Easy handling of tool assures boring straight holes.

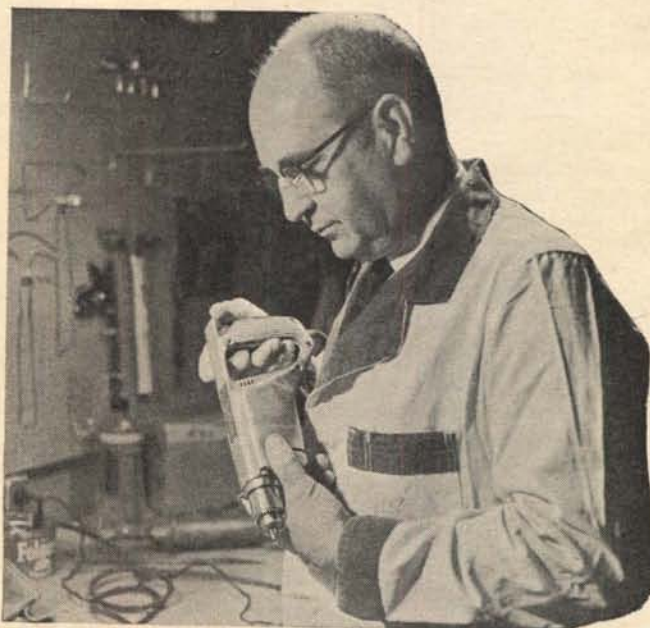


Tool spins off lug nuts or bolts on tractor, truck or passenger-car wheels quickly and easily, will drive them on firmly. All lugs are tightened with equal torque and in a fraction of the time required with hand wrench.



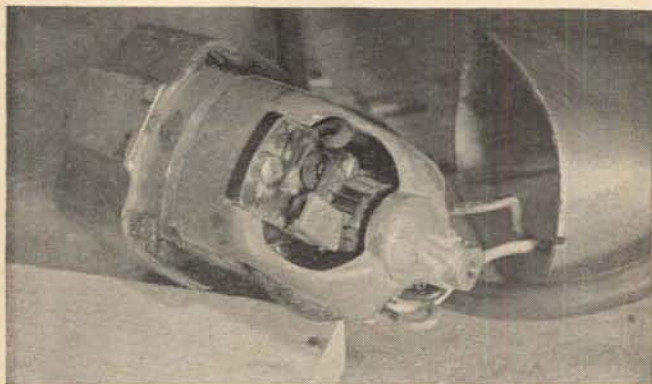
This is not a "gimmick" shot; this was actual test made in Model Shop that demonstrated one-hand operation of tool when driving 2-in. bit.

When you can see heavy arcing between brushes and commutator it is a strong indication that one or more segments of the commutator are "dead."



Improvised Electric Motor Repair

COKE KIMBROUGH



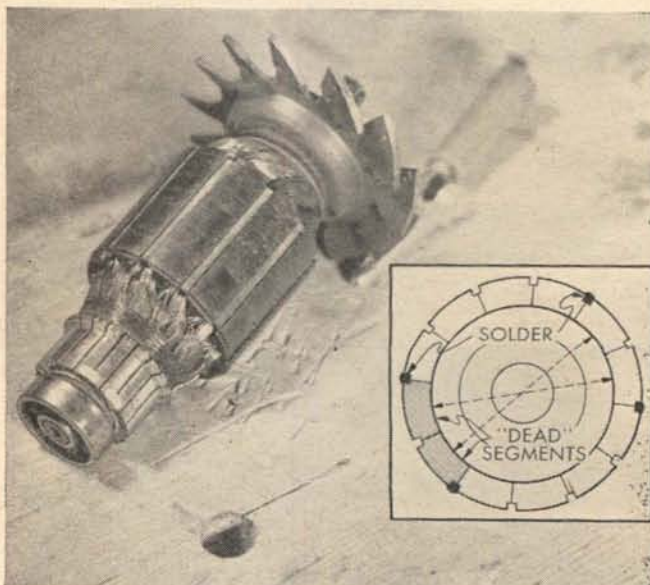
Blackened segments are those that are out of circuit. In the case of the particular armature shown, two adjacent segments were bad.



Multitester was used to check continuity of circuit between commutator segments. Dry cell and flashlight bulb could be used as tester.

INSTEAD OF BUYING A NEW armature, or having it rewound, when heavy arcing at the brushes and blackened segments in the commutator of an electric motor indicate that some of the segments are "dead," I have improvised a repair that will keep a motor running years longer. First, disassemble the tool and remove the armature from the motor. Next, use a voltmeter, multitester or tester improvised by wiring in series a dry cell and a flashlight bulb, to test the commutator segments for continuity. Hold one prod on any segment, then with the other touch the individual segments of the commutator. The segment, or segments, that show no continuity, (the flashlight bulb will not light), are those that are dead. Clean a spot on the dead segment and the good one adjacent, and between the two, and solder them together. Keep the solder away from the path of the brushes. Now, rotate the armature and solder together the diametrically-opposite segments, as indicated in the sketch. This assures electric balance, and physical balance for the armature. On the motor shown, heavy arcing indicated a dead segment, but testing showed two were dead. Each of the dead segments was soldered to an adjacent good one.

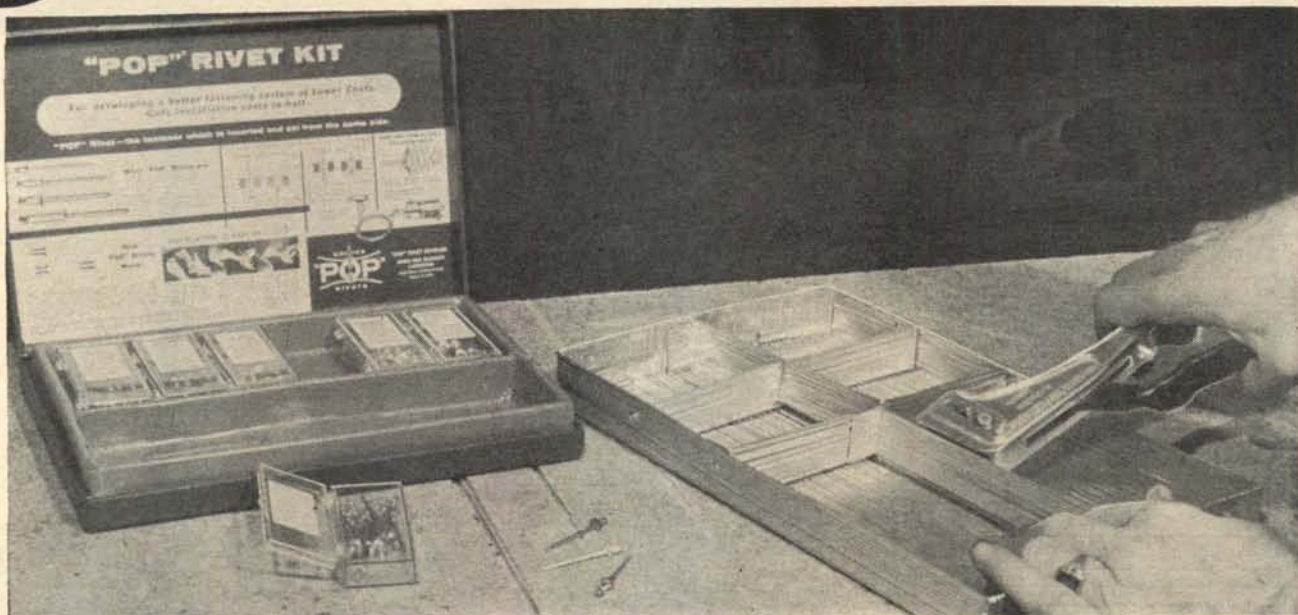
Although the repair described will keep a motor running a long time after it ordinarily would require an armature replacement, it is not a cure-all. Also, if too many of the segments are dead, connecting them to the remaining good ones is useless, as there will not be enough in the circuit to keep the motor rotating with sufficient speed and power to be useful. $\Delta \Delta$



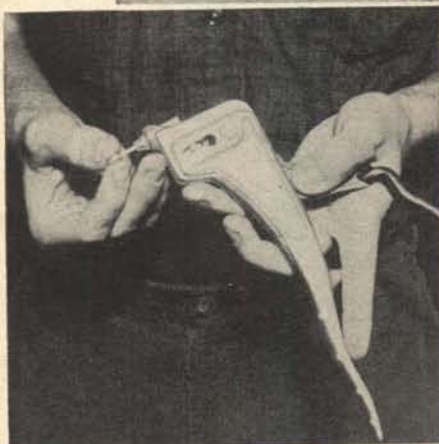
Solder was run between "dead" segments and adjacent segments. This same operation also must be done to diametrically-opposite segments.



"POP"-RIVET GUN



Kit contains gun and complete selection of rivets to handle almost any job around the house and shop. Rivets are in clear-plastic boxes, permitting quick selection at a glance.



Arbor end of each rivet is fitted into gun, then rivet is inserted in hole and handles of gun squeezed together to expand rivet end.

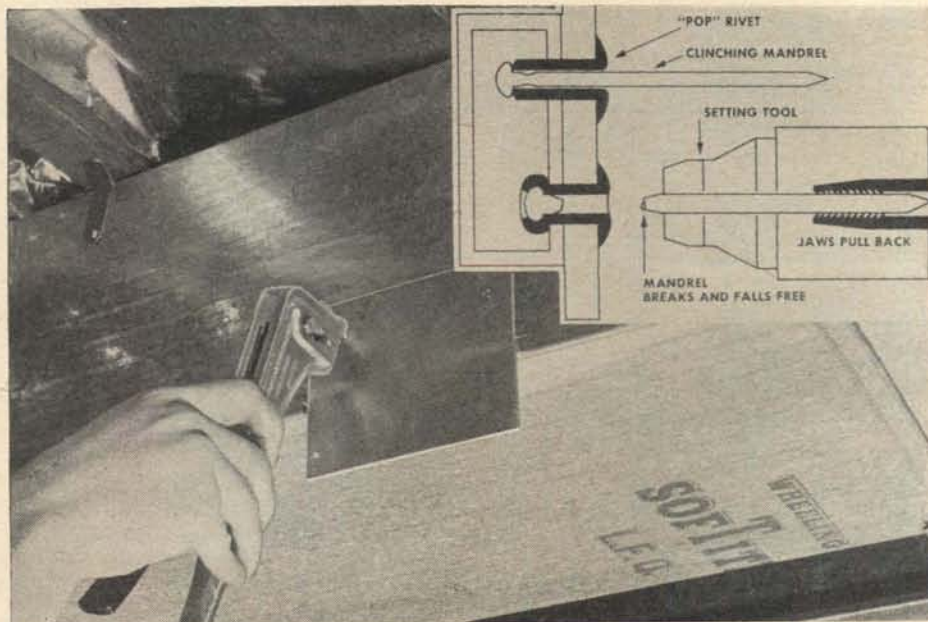


Just one application, of the many possible, is the fastening of lengths of downspout where it is impossible to reach inside.

WE FIRST ran across this tool when doing the story on the Tiki catamaran (March-April, 1961), and were so intrigued by it we obtained a kit for testing. Here is the answer to those "impossible" jobs where you must insert and set a rivet through sheet metal from just one side. The secret of this method of fastening is shown in the inset sketch in the lower, righthand photo. The rivets are hollow and a mandrel passes

through them and extends above the head. The mandrel is clamped in the gun, (or pliers), provided in the kit, which then pulls the mandrel to expand the end of the rivet. When fully expanded, the resistance of the rivet causes the mandrel to snap off.

Just a few of the many possible uses for this tool are shown. The kit is \$19.95 from United Shoe Machinery Corp., listed in our Mfrs.' Directory on page 64 of this issue. △ △

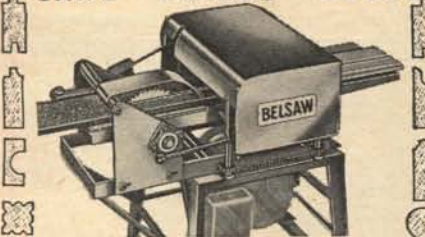


Ducts on a forced-air furnace occasionally need repair, or you may want to attach some sort of bracket; with Pop-Rivet Gun it's a simple job.

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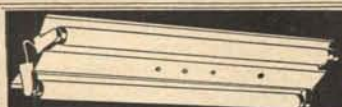
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Cordless Electric Drill



YOU CAN forget about extension cords and other sources of electric power with a new portable drill that contains its own power unit. In a continuous-drilling test the drill bored 30,000 1/2-in. holes in 3/4-in. fir before the power cells had to be changed. The cells are rechargeable by a special unit that plugs into the rear of the tool, and into any 110-volt household outlet. The extremely efficient motor is totally-enclosed to protect it against dust and dirt, is amazingly quiet and shockproof. Despite its self-contained power source the tool weighs only 4 lb. and is balanced for one-hand operation. The drill will be available this fall for about \$50.00. For further information write to the Black and Decker Co.



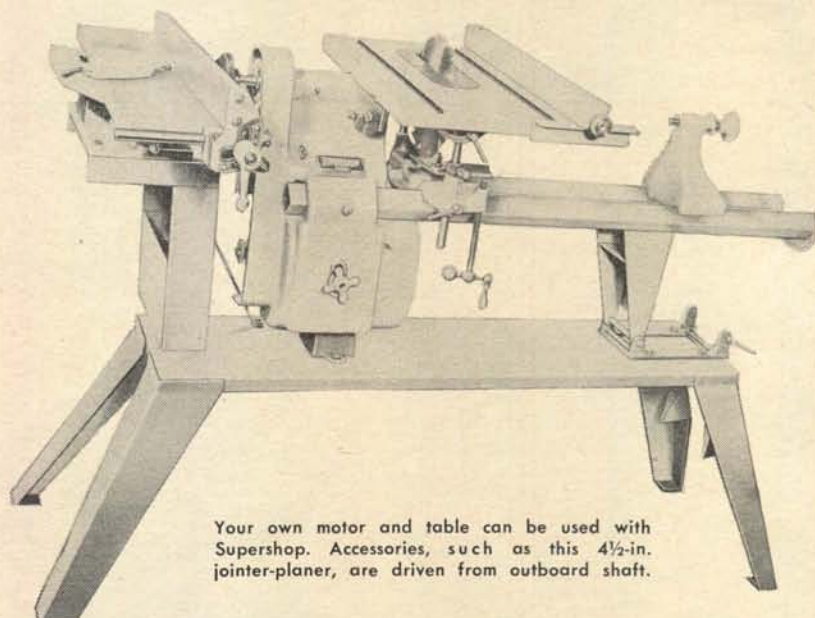
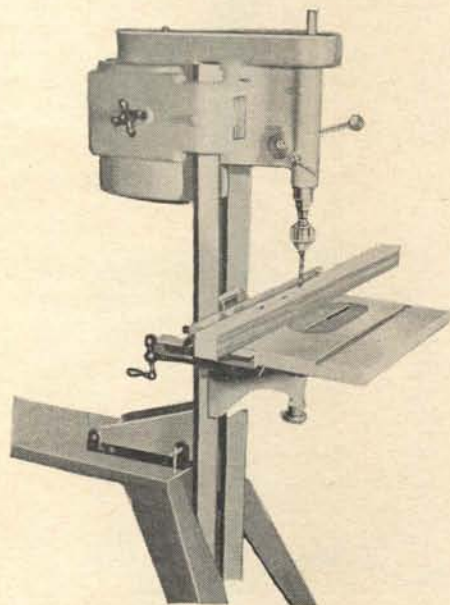
Car-Upholstery Cleaner

KEEPING THE INTERIOR of your car clean is no problem when you have one of these hand-size shampoo applicators. It has a squeeze-bottle handle that is pressed to force shampoo through the sponge-and-brush cleaning head. The shampoo itself is a special type that cleans through a foam action, which eliminates the need for scrubbing or soaking the upholstery material. The

shampoo is nontoxic, nonflammable, odorless and dries in minutes. All car interiors, whether mohair, fiber, acetate, plastic or leather can be cleaned. This includes head and roof liners, floor coverings, seats and seat covers and all convertible tops. Available at automotive, department, grocery, variety and hardware stores. Manufactured by Bissell, Inc. of Grand Rapids, Mich.

"Supershop" Combination Tool

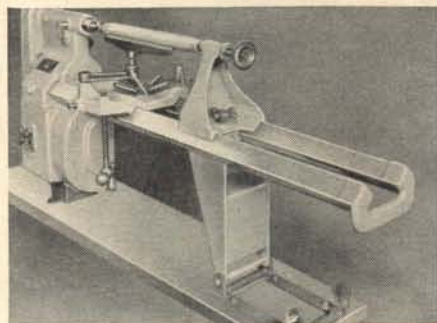
When positioned as floor-model drill press, tool has chuck with ½-in. capacity, maximum height of drill head above floor is 60 in.



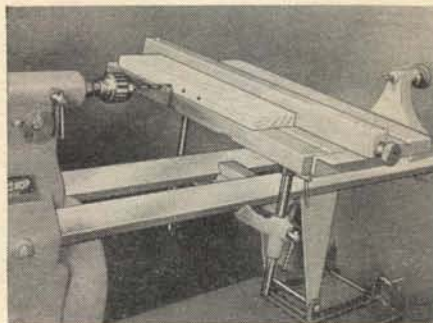
Your own motor and table can be used with Supershop. Accessories, such as this 4½-in. jointer-planer, are driven from outboard shaft.

YOUR OWN MOTOR can be used for the "Supershop" and you can build your own bench, both items helping you save money. The motor recommended is one rated at ½ H.P., turning at 1750 r.p.m. A toggle switch on the machine has a wiring harness to permit connecting it to the motor. The table required is only 4 ft. long,

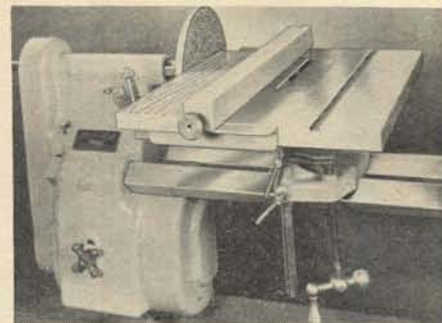
21 in. high. Tables also are available from the manufacturer, as are motors. Standard model includes 8-in. combination saw blade, 8-in. disk sander, 5-in. grinding wheel, ½-in.-cap. chuck, 13 x 18-in. saw table. Price is \$139.50. For more information: Supershop, Power Tools, Inc., 1980 Yates Ave., Beloit, Wis.



Lathe setup has 30-in. distance between centers, sanding disk can be used as faceplate for turning bowls, etc. Tool rest is on pivoting arm.



When used as horizontal drill press, saw table, rip fence, miter gauge and tailstock serves as jigs and guides. Quill has stroke of 3 in.



Sanding disk and saw blade are same size, 8 in. diameter. Use of rip fence and miter gauge assure accurate angles when sanding stock.



Electric Edger-Trimmer

TRIMMING A LAWN along walls, around trees and under shrubs can be a time-consuming, muscle-tiring job. This electric unit makes it a stand-up chore that requires a minimum of time. Operating in much the same manner as a miniature rotary mower, the edger-trimmer has a guard under the blade to prevent objects from being forced up into it. "Teeth" at the front of the tool pick

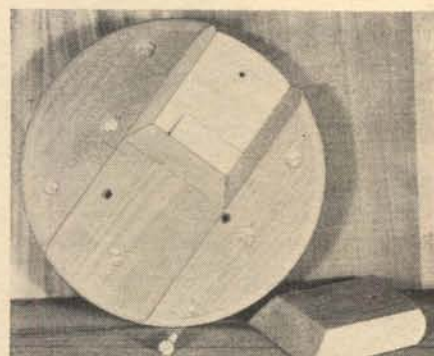
up the grass and hold it in position for cutting by the blade. An interesting additional feature of the unit is that loosening a large thumbnut permits the motor, blade and teeth to be turned 90 deg., which permits using the tool to cut a clean, straight line along sidewalks, drives and the like. Starflyte Edger-Trimmer is made by Portable Electric Tool Co. Address in Mfrs.' Directory.

Metal Spinning

DICK HUTCHINSON



1. Here the sectional chuck is assembled and mounted on a 3½-in. faceplate, ready for use. Surfaces of all sections are flush with others.

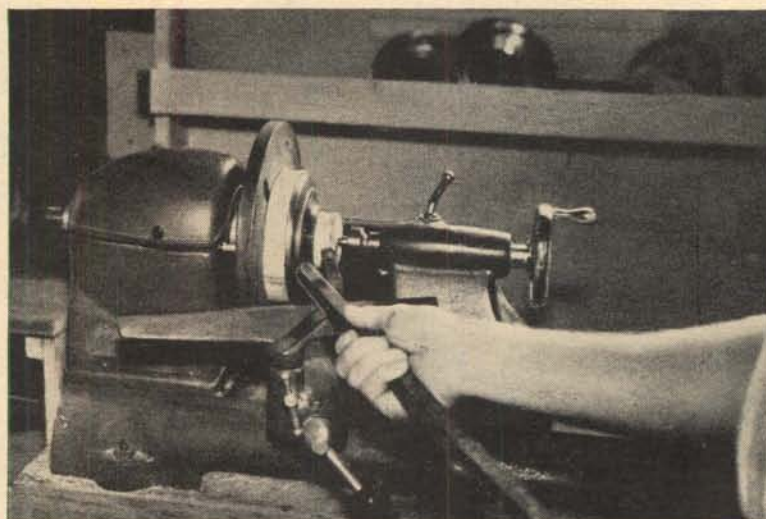


2. View of face of sectional chuck shows how it is disassembled to permit removing it from finished spun bowl with curved-in top edge.

ANYONE WHO CAN OPERATE a wood lathe can spin metal. Instead of hunting for the proper size and shape of metal liner for that ashtray, flower bowl or tray that you have turned on your lathe, simply spin one to fit exactly. Even bowls with rolled-in edges can be spun.

A live tailstock is required for metal spinning. That is, a tailstock with a ball bearing, permitting the assembly to rotate with the work it

is holding. Special tool rests fitted with a pin fulcrum are available. However, none of them suited exactly, so the author made his own, Figs. 3 and 5. This is bent from flat steel and fitted over the regular tool rest. A spinning tool can be made from a 33-in. length of ¾-in.-sq. wrought iron (curtain-rod stock). Grind one end to shape as shown in Fig. 5, and smooth with an oil stone to a scratch-free finish so it



3. Demonstrated is use of the fulcrum. This is bent from flat steel and fitted over regular tool rest. Shaping tool, in this case the shop-made unit, is held against fulcrum with end against metal clamped between faces of forming blocks.

4. Purchased metal-spinning tool is being used in this case. Metal tool is fitted in long wooden handle. In all cases, tool must have long handle to provide operator with plenty of leverage. This permits applying heavy, constant pressure on metal blank to "flow" it to shape.

will not mar the metal it is spinning. Fig. 3. Should you get interested and wish to do a lot of metal spinning you may want to buy a tool, such as the Dixon No. 18 flat-ball tool, shown in Fig. 4.

Wooden chucks used for metal forming, Figs. 1 through 5, are turned from 1-in. or thicker maple. The clamp blocks—which hold the metal against the wooden chucks and are held in place by the tailstock—are turned from birch plywood. They are tapered, and of a size to allow the spinning tool to contact the metal where the curve in the spinning begins. The wooden chucks can be made any size or shape that can be handled on your lathe. Should you wish to spin a bowl with a rolled-in upper edge a special sectional chuck is required, Figs. 1, 2 and 5. A description of this chuck first appeared in the Jan., 1956 issue of *INDUSTRIAL ARTS AND VOCATIONAL EDUCATION*, a magazine for shop teachers. The information is reprinted with their permission. Note

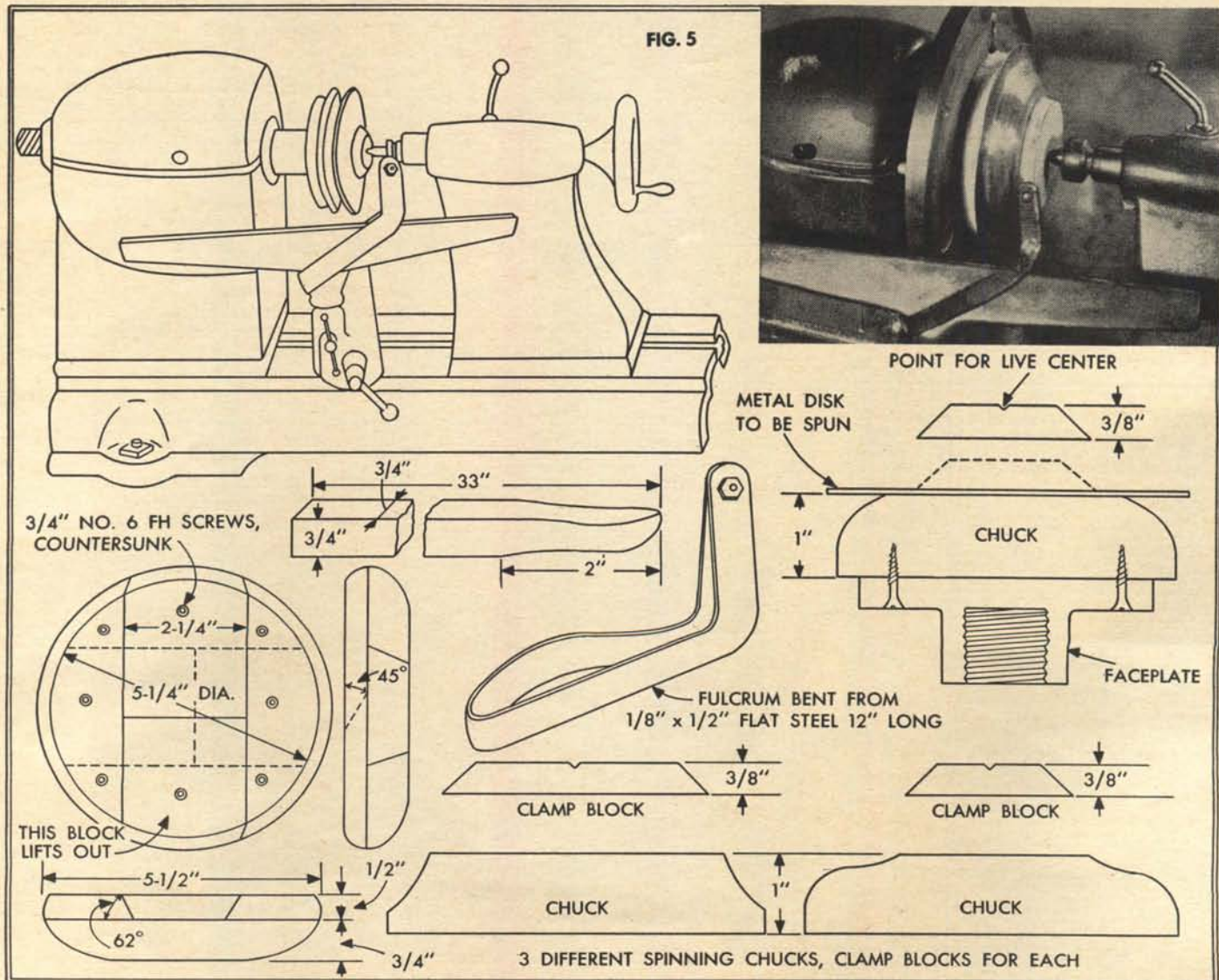
that the chuck is made in two layers. Each layer consists of four pieces; the two outside pieces are solid, the inner member is cut in half at 45 deg. After a metal bowl is spun, the sectional chuck is removed from the faceplate, then is disassembled and removed from the spun bowl.

The easiest metal for a beginner is sheet aluminum, although brass and copper also can be spun. All metal should be 18 or 20 ga. Set lathe speed down to about 640 r.p.m. Attach the chuck to the faceplate, (a 3½-in. plate is most practical), measure across the curved diameter of the chuck and cut a disk of metal this diameter. Center the disk on the chuck, set the clamp block in the center, slide the tailstock forward and lock in position. Screw the live center into the center of the clamp block tightly and lock in place. Coat the surface of the metal with heavy grease, as well as the end of the spinning tool. Set the tool over the fulcrum with the polished end slightly below center. Start the lathe



and work the end of the tool against the metal close to the clamp block. Exert firm, even pressure against the metal, forcing it against the surface of the chuck. It may be necessary at times to move the tool rest—with fulcrum—closer to the work as the spinning proceeds.

A special cut-off tool may be purchased, but the soft metal can be trimmed easily with snips and the edge filed smooth. The finished bowl can be hammered, buffed or lacquered as desired. $\Delta \Delta$



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INSTALLING SHELVES in a cabinet, partitions in a drawer or louvers in a frame does not require any joinery when these handy metal clips are used. The clips simply are tapped into the wood with a hammer. They are designed to accommodate wood up to $\frac{1}{4}$ -in. thickness, but heavier stock can be handled by rabbeting the material or making a saw kerf on the edge. If the material is rabbeted, the stock is cut away to leave a $\frac{1}{4}$ -in. edge that will fit in the clips.

When a kerf is used, it is positioned so the edge of the cut is $\frac{1}{4}$ -in. from the surface of the material. The clips were tested in the Model Shop, and we were able to use them to provide a means of sliding a shelf in and out of a cabinet. When you use them in your shop you no doubt will find even more uses. Zip-Clips are available by the box, or can be purchased on a card, wherever hardware and building materials are sold. Manufactured by Asa D. Scott Industries.

Electric Block Plane

UNTIL NOW electric planes could be used only to edge-plane. This made them fine for speeding up jobs like hanging doors and fitting storm windows and screens, but they were of no use when surface-planing was required. The Porter-Cable electric block plane takes over where the usual plane quits, and can be used to smooth the surface of any size piece of stock. Free-hand planing of

stock, as shown in the photo, is no problem and a bracket provided with the plane permits it to be used as an accurate edge-planer. Because of its compact size and design the block plane can be operated with just one hand, which allows your other hand to be used to steady the work, reducing the need for clamps or other steadying devices. At all Porter-Cable dealers or from company.



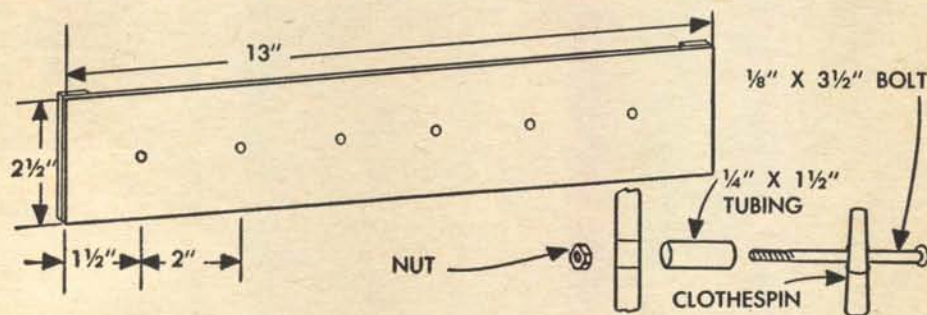
Glove Bar for Mom

FRANCES M. CALLAHAN

JUNIOR CRAFTSMEN can readily assemble this glove bar that also can be used for storing belts. Pairs of gloves will not become separated, nor belts lost, when they are held by this unit that can be fastened to a closet wall, or to the inside of a closet door. Size of the rack can be increased, but the unit shown holds



six pairs of gloves which should be adequate in most cases. The back of the rack is a piece of 1/4-in. plywood, as are the 1 x 2 1/2-in. cleats nailed to the back flush with the ends. Enamel completed unit. △ △



Stamp Engraving



HOBBYISTS SEEKING new materials with which to work will be interested in this Stamp Engraving kit that has both leather and metal. Aluminum sheets are cut to shape, then engraved by using the special tools provided. As shown in the photo, all tools, including a mallet, jig saw, hole punch and cement are

included. Leather and metal are laced together to form such items as coin purses, bracelets and earrings. The kits can be purchased from all Tandy Leather dealers. For the name of the one nearest you write directly to the company. Address is in the Mfrs.' Directory on page 64 of this issue. △ △



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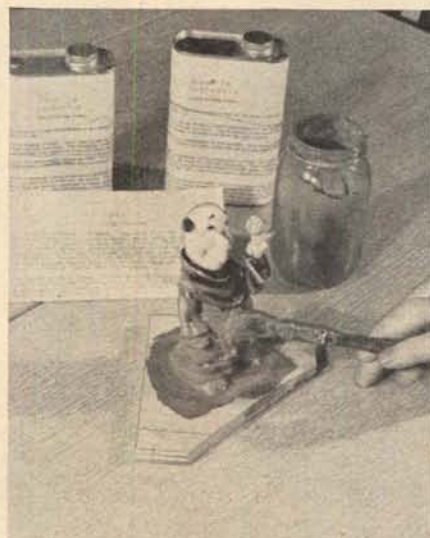


Shown are the original figure, right; the flexible mold that was made from it, rear; and the copy cast in plaster at the left. A little paint and the copy would be finished.

Flexible-Mold Duplicating

BY THE USE of the flexible-mold technique even figures made of non-hardening modeling clay and soap can be cast in plaster and hard plas-

tic. Figures made of wood, metal and ceramic materials offer even fewer problems. "Castoflex," a material that sets up at room temperature was used for making a mold of the figure shown in this article. There was some doubt as to whether the material of which the figure was made, as well as the paint, would stand much heat. Figures made of



Mold is made by cementing figure to board with liquid, then applying several thin coats of the material to the surface with a paintbrush. Board helps hold figure while it is coated.

When enough coats of material have been applied, and they are well set, flexible mold is peeled from figure. As shown here, exterior of mold only roughly approximates shape of original figure.



heat-resistant materials are duplicated by using "Castoflex," which is available in two formulations, one requiring heating in an oven at 200 deg., the other at 350 deg. These formulations are somewhat stronger than the air-drying Castoflex.

Several thin layers of the material are applied, and each layer is allowed to dry thoroughly. On our first attempt at mold-making we were not careful enough, and the casting made from the mold did not completely duplicate the original. The second attempt was more successful, but even here the small bird did not turn out too well. A wire armature should have been included to support thin sections, such as the bird's tail. If transparent or opaque pouring plastic were used—being much stronger than plaster—an armature would have been unnecessary and all details would have been duplicated clearly. All materials described are sold by the Castolite Co. Δ Δ



Flange which was formed with mold is held to rim of large glass, supporting the mold in inverted position. Molding plaster, plastic or other material then is poured into mold as here.



When casting has set thoroughly, flexible mold is peeled from figure carefully to prevent damage. Because mold material is applied as a liquid it follows every curve, line and depression.

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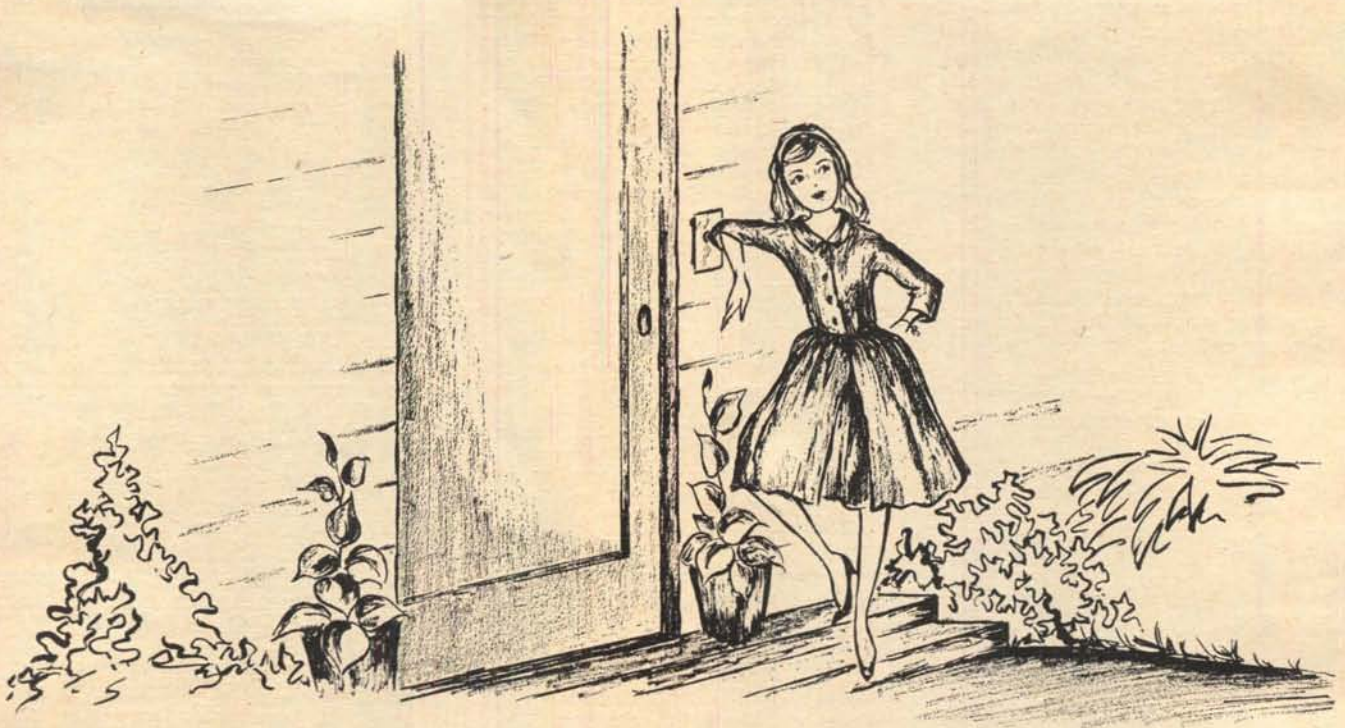
Check use:

Wood _____ Metal _____

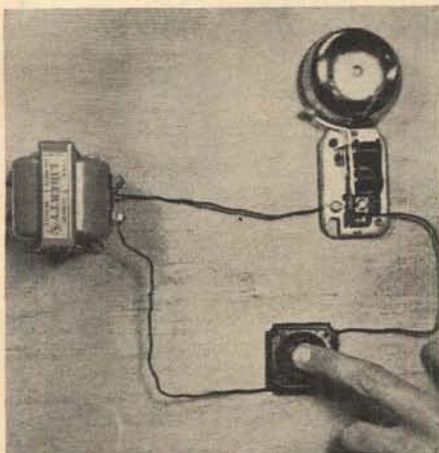
Ceramics _____

Repairing Doorbells and Chimes

JERRY PARKER



It can be embarrassing for you, awkward for your guests when doorbell or chime does not work when the button is pressed. Make an occasional test, repair any malfunction yourself in a short time.



1. Mock-up of typical circuit shows power source, (transformer or dry cells), push button and bell or chimes, wired together in manner indicated.

6 or 12-volt bulb to check the current. (You can make such a test lamp from a discarded socket from an automobile.) If the bulb does not light, the transformer is at fault, or the dry cells are dead and need replacing. On a transformer, check to make sure the fuse or circuit breaker is all right, then use a 110-volt test lamp on the high-voltage side of the transformer to determine if current is reaching it. If the light shows current reaching the high-voltage side, with none coming off the low-voltage side, replace the

transformer. When making these tests there should be no problem determining the high and low-voltage sides; the low-voltage side will be wired with bell wire, which is a small-size (18-ga.), lightly-insulated conductor, Fig. 1.

Should the transformer check out all right, the push button beside the door is the next item to check. Remove the button from the wall, check for broken wires, then "short" across the connectors with a screw driver, Fig. 3. If the bell rings, replace the push button. They usually are quite



2. When checking bell or chime that does not operate, first check power source. Use a 6-volt bulb to test transformer (or dry cells). If bulb lights, transformer is delivering current.

DON'T WAIT until your guests hammer at the door and tell you your doorbell or chime is not working. Occasionally press the button as you enter the house; if the bell or chime fails to work, check it out to find the malfunction and repair it. The first test, Fig. 2, is to determine if your power source is all right. Newer door chimes and bells utilize a transformer for power. It takes 120-volt house current and drops it to 16 volts or less. Older-model bells utilize dry cells for power. In either case use a



3. Push buttons are most frequent source of malfunctioning, as they are exposed to weather. Bridge terminals, if bell rings, button is bad.

inexpensive and it is not worth the time to attempt a repair. Should bridging the push-button connectors not ring the bell, but produces a spark, there is a short-circuit in the wiring, or the contact points in the bell are not functioning properly. Take the cover off the bell or chime and have someone push the button (to which you have reconnected the wires) while you watch the mechanism. If the clapper does not strike the bell, or does so only once, the contacts need adjustment. One contact is on the clapper arm, the other on a stationary bracket next to the arm, Fig. 4. The contacts should be adjusted to produce as rapid a vibration of the clapper arm as possible, Fig. 1. Adjustment is made by turning a screw held by a locknut, or by bending the stationary bracket slightly. If the clapper arm does not move at all, clean the contact points

with fine sandpaper, Fig. 5. If the clapper is out of alignment, the arm may be bent so the clapper strikes properly, Fig. 4. If your home has a chime, there will be a magnetically-actuated rod, or rods, that strike metal bars or tubes. Dirt or corrosion will prevent proper operation of the rods. Remove them, rub with crocus cloth, then clean with a dry-cleaning solvent. Do not apply oil or other lubricant. Apart from this, trouble-shooting a faulty chime is the same as for a bell or buzzer.

If all the parts of the bell circuit, Fig. 1, seem to be in good order, but the bell does not operate, there probably is a short circuit. To test for a short, disconnect one of the bell-circuit wires at the transformer and fit your low-voltage test lamp between the transformer and the wire. If the bulb lights, there is a short. Go over all exposed bell wire carefully, looking for breaks or chafed spots in the insulation. Wrap these spots with tape. If you can't find or repair the short (and some of the wire will be inside walls), do not spend too much time on the job. Bell wire is only about 3 cents a foot, and is available in black-and-white double-strand variety that lets you run both lines at once. Make sure you do not damage the insulation on the new wires as you pull them through holes or around corners. Where possible, carry long runs through the basement or attic. In some situations you can use the old wire to pull the new line into place.

When replacing a transformer, be sure it has the correct capacity. A 10-volt unit that handles a load of 5 watts is satisfactory for ordinary circuits, but a circuit with more than one bell or chime requires a 16-volt transformer that will handle a load of 10 watts. There is little hazard in handling the low-voltage side of a transformer, but when replacing a unit pull the fuse or shut off the circuit breaker to eliminate shocks from the 110-volt side. $\Delta \Delta$

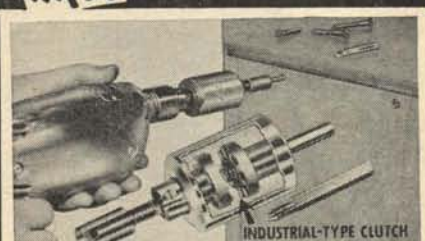


4. Clapper on bell may require adjustment by bending with pliers. Only slightly bending is enough to correct problem most of the time.



5. If points need cleaning, use fine sandpaper, not emery cloth. Adjust contact gap by turning screw—if one is provided—or bending bracket.

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Handsome Holders for Potted Plants

D. C. MARSHALL



1. Edges of the separate strips can be beveled with jointer-planer or cut with circular saw.

USED EITHER to hide the awkward shape of regular clay pots, or as planters themselves, these handsome wooden holders can be used to bring a garden into the family room, or add a touch of color to a patio. They are ideal for plants that might be harmed by a late frost, as the holder can simply be carried into the garage or basement until the following day when the sun comes out and removes the threat of freezing.

Your first step is to determine the number of sides you wish to use; the fewer, of course, the simpler the job. The table at the end of this article shows the angles required for ripping, Angle A, and for crosscutting the tops and bottoms, Angle B. The bottom of the holder is marked by placing the assembled side members

on a piece of stock and marking inside the holder. The angle of cuts on the bottom member is the same as the cross-cut angle, B.

The holder shown in the photos has eight sides, but the drawing, Fig. 4, shows one with six sides. If this is your first attempt at this type project, we suggest the six-sided holder. Also, to check your angle cuts, which must be quite accurate, practice on scrap stock. All cuts can be made with a table saw or radial-arm saw, but if you own a jointer-planer, you might prefer to use it, as the resulting finish will be smoother, Fig. 1.

Whether you cut the side pieces tapered, as in Fig. 4, or straight, the angles remain the same.

After cutting the side pieces, glue is applied to all edges and they are



2. Clamping can be done with improvised setup.



3. After flat-black enamel was dry, white filler was applied, excess removed to provide silver look.

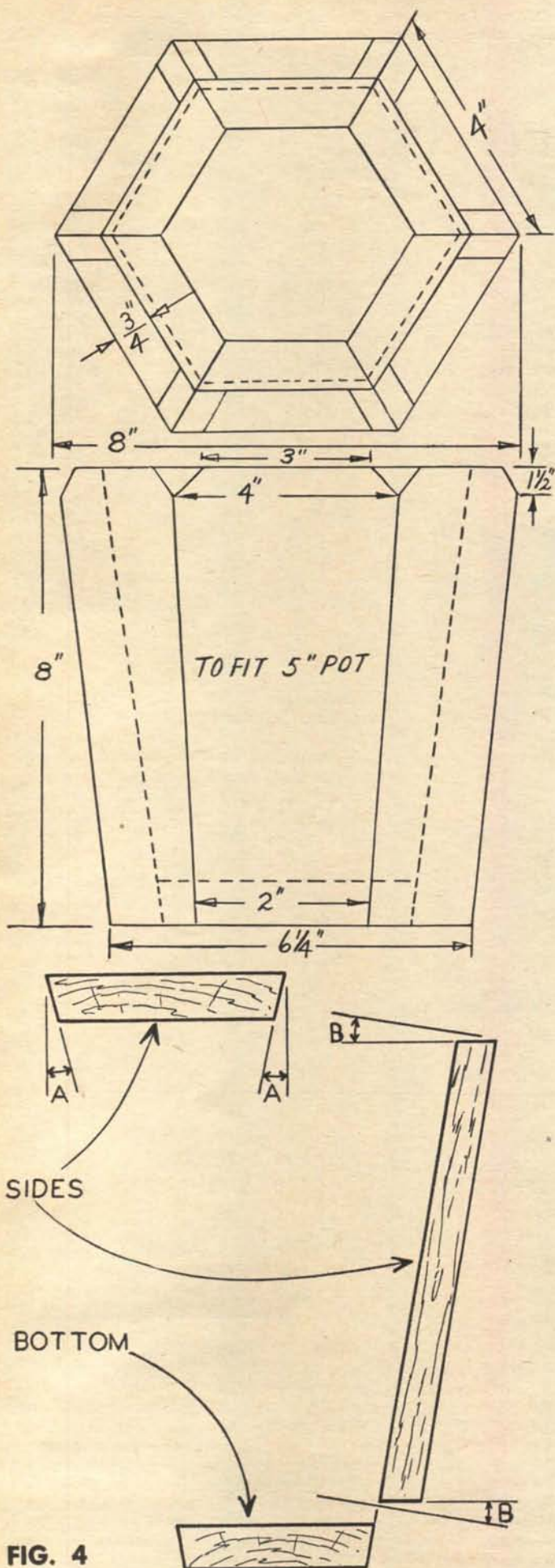
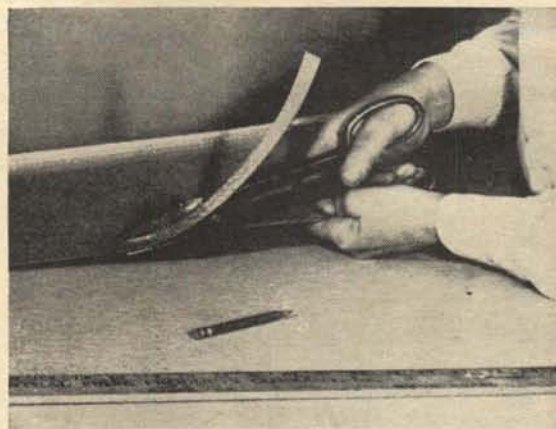


FIG. 4



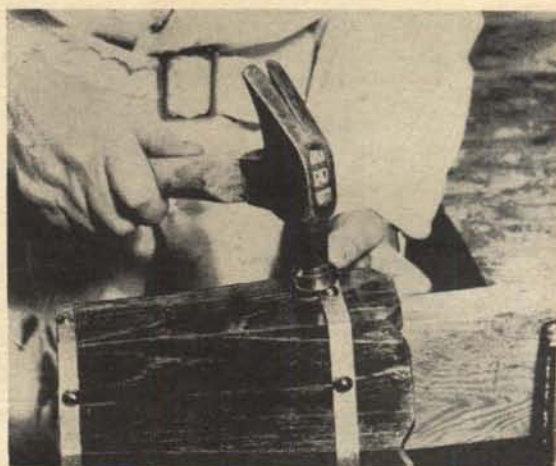
5. Metal bands can be cut from embossed, do-it-yourself aluminum, available at most hardware stores. Brass or copper, if available, are equally attractive and provide reinforcement.

clamped together. A clamp can be improvised from a strip of metal with blocks nailed to each end so that a C-clamp or handscrew can be used to apply pressure, Fig. 2. When the glue has set, the bottom is marked out, sawed to shape and fastened with finish nails.

Redwood is the best wood for the holders, but other woods can be used. The elm used for the original was sprayed with flat-black enamel, then white filler was rubbed into the wood with a soft cloth, Fig. 3. Excess filler was wiped off and the resulting finish had the look of black and silver.

Bands of brass, copper or aluminum Fig. 5, are used to add strength and appearance. Chrome-plated upholstery nails are used with aluminum, brass with brass and bronze with copper, Fig. 6. Paint the inside of the holder with bituminous paint if a pot is not used. $\triangle \triangle$

No. of Sides	Angle A	Angle B
6	30°	60°
8	22.5°	67.5°
10	18°	72°
12	15°	75°



6. Various types of upholstery nails, as described in the article, are used to fasten bands.

Light shines through completed "stained-glass" painting, rippled surface of special glass and translucent paints—all furnished in kit—produce a painting that looks like genuine article.

Stained Glass

THE ANCIENT ART of making paintings by assembling pieces of stained glass with lead strips has been brought up to date and now is available in kit form. Sheets of special translucent glass with a rippled surface are provided, along with strips of lead. The latter are in various widths. Special adhesive is applied to the strips and they then are cemented to the glass.

After lead strips have adhesive applied to one side, they are cut to fit pattern that is placed under the sheet of special glass.



In each kit a pattern is provided, which is placed under the glass. It shows where the lead strips go, as well as the colors to be applied to each area. Besides the kits, materials can be purchased in bulk, to permit making your own designs. Kits are \$3.95 plus postage. U-Stain Glass Kits, Immerman and Sons, Inc., 1924 Euclid Ave., Cleveland 15, Ohio. △ △

When all strips have been fitted to the glass, paint is flowed into various sections, according to letter code on pattern; colors are translucent.

Book Reviews

THE COMPLETE WOODWORKING HANDBOOK
by J. T. Adams and E. Stieri
Arco Publishing Co., Inc., 480 Lexington Ave.,
New York 17, \$4.95.

Fine for both beginner and professional, this book shows the step-by-step methods to be followed in making the most important projects. Special advice is given on the use and care of power tools, a section of the book is devoted to help you solve the sometimes intricate problems involved in preparing and applying finishes so that a project has a truly professional appearance.

HOW TO TAKE BETTER PICTURES
By Arthur Goldsmith
Arco Publishing Co., Inc., 480 Lexington Ave.,
New York, \$2.50.

Planned basically for the amateur photographer, the information contained in this book will be of value even to experienced camera users. The book answers the questions, "What camera should I buy?" "What kind of film should I use?" "What about the new fast films?" And even tells how to set up a darkroom to develop and print your own pictures. If you are serious about your picture taking, this book is of value.

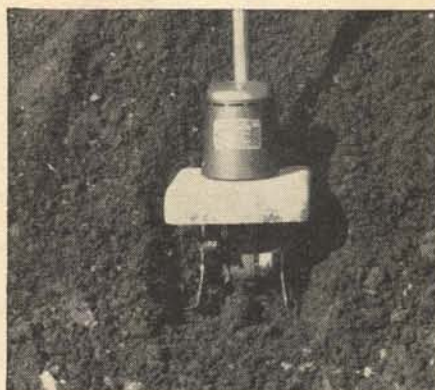
HOW TO MAKE ATHLETIC EQUIPMENT
By Joel W. Carter
Ronald Press Co., 15 East 26th St.,
New York 10, New York, \$6.75

This manual is intended for schools, playgrounds, recreation departments, camps and the like that have to operate on a restricted budget. More than 350 items of equipment can be built or improvised with the instructions given. Everything from gymnastic equipment, trampolines, track hurdles and even portable grandstands are described. Given are material lists and the tools required.

Electric-Powered Tiller



DRIVEN BY a motor no larger than one used to power a 1/4-in. electric drill, this tiller does an amazing job. It is claimed that the tiller will dig 6-in. deep; we ran it down a foot with no trouble, as shown in the photo. In sod and hard clay, the tiller did slow, but only stalled when we forced it. One of our tests was to run the tiller in a heavy-clay soil that was full of rocks from gravel-size up to some a



foot long. The tiller kicked most of them aside, jumped away from the large ones, but did hang up on some medium-size rocks. We knocked these free with a stick or another rock. We would suggest some sort of reversing switch as an aid in removing obstructions from the blades, but find no other fault with the unit. The Starflyte Tiller is made by the Portable Electric Tool Co.

MORTAR MIX



PROPERLY-MIXED mortar makes a big difference in how long a job will last when you tuck-point a brick wall or build one of stone or block. Ready-mixed material is your best bet, and you can mix from a cupful to enough for a couple of hours' work. The homeowner here mixed his mortar in a plastic dishpan while working on the rock wall of a planting box.

This mortar sets to a clean, white color and has a smooth, hard finish. You are always sure of consistent results and appearance, which is not always the case when you try to mix your own cement powder and slaked lime. The material is available at most building supply dealers, lumberyards and hardware stores under the name Sakrete Mortar Mix.

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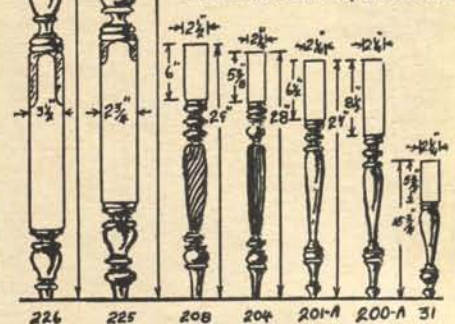
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WORKBENCH RESEARCH DEPARTMENT

EACH ISSUE IN THIS COLUMN WE WILL CHOOSE QUESTIONS ON HOME AND SHOP SUBJECTS FROM LETTERS SENT TO US. ONLY THOSE QUESTIONS WHICH HAVE WIDE APPEAL WILL BE ANSWERED HERE. QUESTIONS ON SPECIALIZED SUBJECTS WILL BE ANSWERED BY INDIVIDUAL LETTER FROM THE RESEARCH EDITOR'S DESK.

Dear Research Editor:

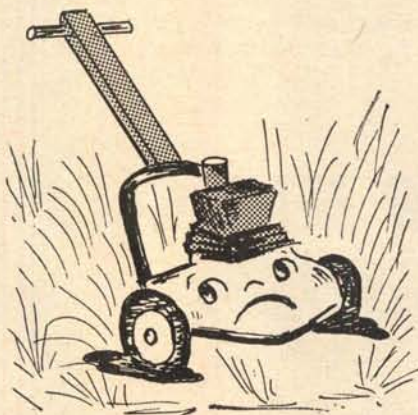
Last fall we had several of them, and now they're coming back again. I'm talking about furnace repairmen. They offer a real low price to clean the furnace, then suggest that it needs repair or replacement. One man showed me some rust and pointed out that very likely the firebox was rusting through and a dangerous condition existed, probably carbon monoxide gas was being let into the house. Our gas-fired warm air furnace is only three years old and is a good make. Do they go bad this fast? You have any thoughts or suggestions on this? Mrs. D. B., Okla.

Dear Mrs. D. B.:

The situation you describe is not local, has very little to do with the furnace—it's just a scheme to sell furnaces. Of course, you might answer us by saying that this might—just might—be the one time when the furnace was bad. By all means check. We discussed this with several heating engineers, the Better Business Bureau, and also with the local gas company. Their advice collectively is this: on any extensive repairs, get several bids. Do not give the repair job to the first man who comes until other furnace men have confirmed the trouble. If you do not wish to go to this trouble, perhaps your city has a warm-air heating department. Call them. Ask if they will inspect your furnace. Usually an inspector will check if asked to. If there is no such department, call the local gas company, they also have competent men who can inspect your furnace installation. Probably the safest course is to deal with reputable firms. They very seldom have door-to-door solicitors and never use scare tactics to get business. Be sure you get all guarantees and service warranties in writing. And if you are still in doubt, call your local Better Business Bureau. Incidentally, the local gas company engineer pointed out to us that under normal conditions it is not necessary to have a straight gas-fired furnace cleaned at any time . . . if the filters are changed periodically.

Dear Research Department:

My power rotary lawn mower is about five years old. Before the mowing season started this spring I checked it over and had it in what I considered good running condition. Now, less than two months' operation seems to have it on its knees. Got any idea what's wrong? It is hard to believe that five years is the life of the unit—it's a good brand. Mr. J. R., Massachusetts.



Dear Mr. J. R.:

We agree that it is unlikely your mower is "over the hill." Accordingly, we are going to make a list of suggestions that we feel may help to solve your problems. The first month or two of cutting in the spring is very likely the hardest on the mower during the whole season. The grass is wetter, there may still be sticks and stones in the grass from the winter. All of these contribute to and aggravate the problem.

First, a good cleaning is in order. This prevents overheating. Use a broom or stiff brush. Then with screwdriver or small dowel rod clean the air cooling fins. Next, check condition of the carburetor air filter. Wet clippings may be stopping or retarding the air intake and, in effect, choking the engine. Remove the filter, clean according to the manufacturer's suggestions. (Generally in gasoline or alcohol.)

Still with the engine, you had better test compression. To do this, remove the wire from the spark plug and pull the starter rope. There should be resistance. If not, compression is bad. Replacing rings is usually a job for a small-engine repair shop. Remove spark plug next but attach the wire and lay the plug on the engine. Pull starter cord to spin engine while watching plug. There should be a spark across the gap. If there is none, the plug may be bad. Clean carefully with a wire brush, regap according to the manufacturer's specifications. If you have no equipment to do this accurately, gap the plug so that a dime will just slip through the gap. Though not accurate, this should give a setting that will allow the engine to work. If you notice cracked porcelain or if the plug still does not spark after your cleanup job, replace it. One further check will tell you if it is plug or magneto causing the trouble: holding the rubber-covered plug wire, with plug removed, spin engine with plug-wire end close to the metal engine. If you get a spark, it points the finger at the plug, if not, the magneto may be the guilty party. Generally if the magneto kicks up it centers around a bad condenser. If you replace this, be sure that the replacement is correct for the model, make and horsepower of the engine.

If plug and magneto check out OK, a simple carburetor test is in order. With plug removed, place finger over hole and spin engine, gas turned on. Some fuel should be deposited on your finger. If there is none, there is indication that there is trouble somewhere in the gas system. Check the vent hole in the gas tank. It must be open in order to allow air to be sucked in to replace the gasoline that is pulled into the engine. While still at the tank, check to see if there is any sediment in the bottom. This will stop the line if there is a considerable amount, but a small amount will do its dirty work equally well in the carburetor. If this seems to be the trouble spot, better have an expert clean it.

Having gone this far on your overhaul, which is about what this troubleshooting amounts to, better go one step farther and check the condition of the blade. Easiest way is to remove it. Before doing so, make sure spark plug is disconnected. For safety, always disconnect plug when working on the mower. With the blade removed, check for nicks and sharpness. Then check balance, filing the heavy end as much as necessary to achieve this balance. Replace blade, and you should be back in business!

Though this all may seem like a lot of work, it will pay off in added mower life and fewer tired muscles caused by endless starter-pulling bouts. The best advice that professional mower repairmen can give is that regular maintenance by the owner is a must.



us on having our black-top driveway sealed. Their prices have ranged from \$45 to \$75 for the job. Our driveway is about 45 feet long, two cars wide. Does such a sealer do much good, and how about these prices? Also, could we do this ourselves, at what savings in dollars? How would our job stand up as compared to one of these professional applications? Mr. J. B. L., Tenn.

Dear Mr. J. B. L.:

An asphalt, or black-top driveway, if installed properly, then regularly maintained, should last and be very satisfactory for a long time. Assuming that your driveway has a good, well-drained base and was correctly applied in the first place, regular sealing of the surface will add years to its life. Such driveway maintenance is unquestionably a money saver compared to the expense of relaying a black-top drive.

As to whether you should do it yourself: you can, easily enough, if you can afford to spend three or four hours on the job, and the hotter the summer day the better. If you do the work yourself, the cost for a drive the size you mention should not be more than \$20.00. There are several types of material you can obtain for this sealing job. One, like "Bitucote Sealer" is water-base, comes in concentrated form, is cut with water for application. Another, called "Nu-Drive" comes ready to apply, has a crude oil base, is produced by Cook Paint and Varnish Company. Both types do an excellent job and will last for several years. In both cases, apply when the weather is hot (over 70 degrees) and dry. Surface preparation consists mainly of a thorough cleaning, then brush or squeegee on the material. Let dry overnight and the job is done.

For complete details on application, you might refer to pages 36 and 37 in the July-August 1960 issue of WORKBENCH. The subject is completely covered here.



Dear Research Department:

Several issues ago you mentioned some uses for linseed oil. We wonder if there might not be many more. Do you know of a booklet or other publication listing these uses? Mrs. E. Y., Oklahoma.

Dear Mrs. E. Y.:

Since that mention of linseed oils and some of its uses, we have had a number of requests similar to yours. We obtained just such a pamphlet recently, entitled "101 Money-saving ideas using linseed oil." It is free and can be obtained from the Archer-Daniels-Midland Company, 210 West 10th Street, Kansas City, Missouri. We had no idea of the number of ways linseed oil can be used around the home. It is considered the oldest known wood preservative.

Dear Research Department:

In the past few weeks, several men have stopped at our home to try to sell



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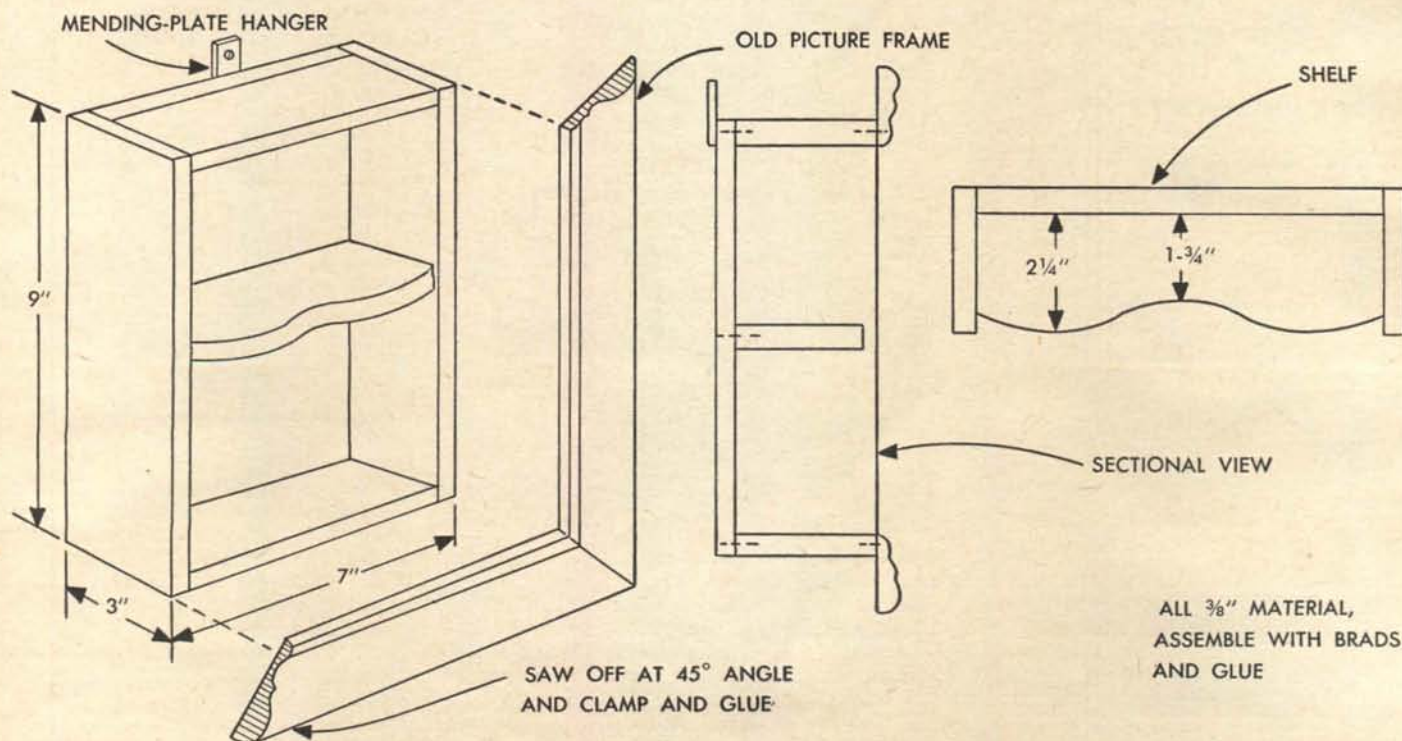
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Picture-Frame Shadow Boxes

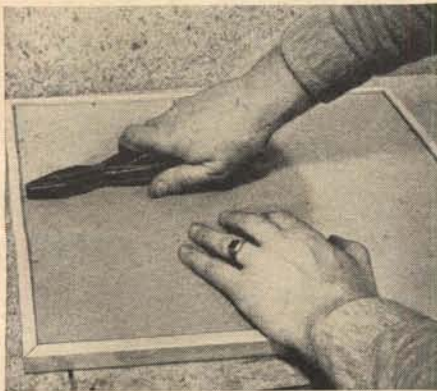
DO YOU HAVE some old picture frames that you do not quite know what to do with? Here's the answer; a couple of hours' work, a few scraps of lumber and you can have a shadow box. Assemble the box first, then cut the frame to fit, mitering the corners at 45 deg. Or, do it the other way; cut the box to fit the frame. Attach the frame to the box with brads and glue. The shelf can be the shape shown, or a straight length of lumber, as you prefer. You might also want more than just one shelf. Paint the frame with gilt, or any preferred color, then make the inside black, or a contrasting pastel color. To hang the shadow box, screw a mending plate to the back of the box as indicated. For an added touch, you might install a small light at the top of the box, to shine through a frosted glass fitted flush on the inside of the top. $\Delta \Delta$



ALL $\frac{3}{8}$ " MATERIAL,
ASSEMBLE WITH BRADS
AND GLUE



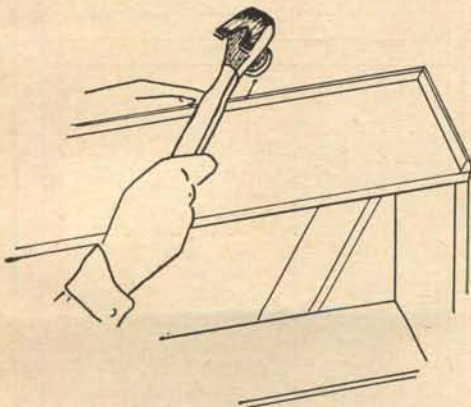
Pliers Used As "Hammer"



Instead of using a hammer to drive brads or glazier's points in the back of a picture frame to hold glass and picture in place, try pliers. Two methods can be used, one as pictured is to grip the brads in the jaws of the pliers and simply push them into the wood. The other method is to straddle the frame with the pliers, one jaw being padded to prevent marring the wood, and close the jaws to force the brads or points into the frame.

A. Zawistowski, Coon Rapids, Minn.

Ladder-Top Tray

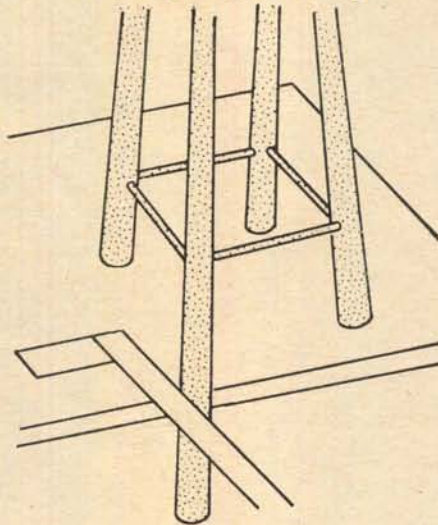


Keep hammers, nails, etc. from rolling or sliding off the top of a step-ladder with a "built-in" tray. Simply miter and nail four pieces of quarter-round molding to the top of the ladder to "frame" a tray.

Daniel Bousha, Jackson, Mich.

WORKBENCH SHOP TIPS

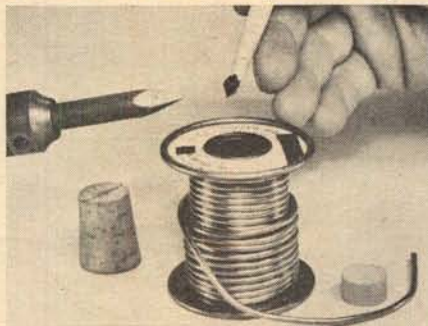
Cutting Legs Evenly



Make sure that all four legs of a piece of furniture will contact the floor simultaneously when you shorten them by first measuring and cutting only three. These three will contact a flat surface, such as a workbench, while the long leg is allowed to hang over the edge. Use a square or straightedge held flat on the bench to mark the long leg. (Make your mark on the underside of the straightedge.) Cut to just remove the pencil line.

Howard Moody, Upper Jay, N. Y.

Solder Flux Kept Handy



Keep paste flux handy to your wire solder by closing one end of the solder spool with a cork or short length of dowel. The paste is packed into the open-end container formed. When the flux is not in use a cork is fitted in open end of the spool.

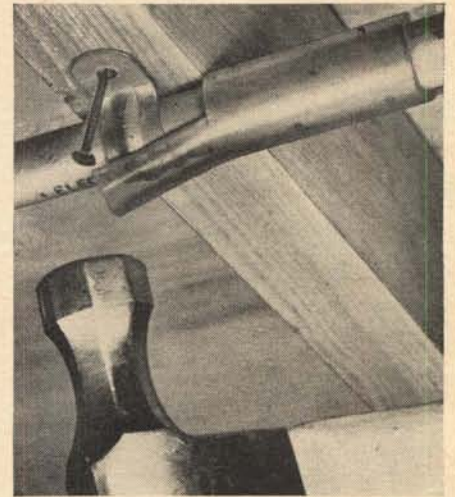
Bil Toman, Palatine, Illinois.

Nail-Polish Engraving

Initials can be burned into the wooden handles of tools and garden equipment with the aid of nail polish. Paint the desired letters with the polish, then light the still-moist liquid with a match. As the polish burns it will char the wood under it. Several applications may be required if you wish the letters burned deeply.

Edward Bentley, Jackson, Mich.

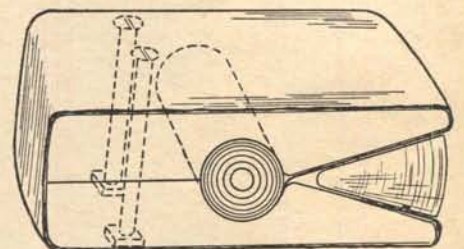
Pipe-Clamp Holder



This simple holder takes the place of the third hand that seems required to keep a clamp in place when one hand holds the pipe or tubing and the other the hammer. Slit a length of garden hose, then trim away part of the hose opposite the slit to make a projecting lip as indicated. An added advantage is that the hose will not complain should you miss the nail and strike it.

Bil Toman, Palatine, Illinois

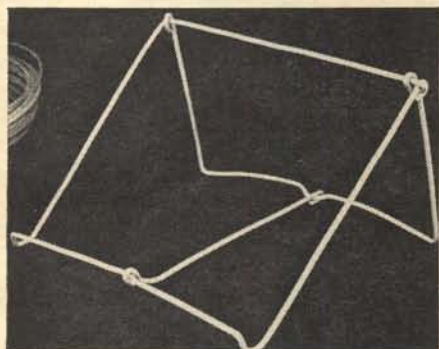
Sanding Block



Pulling out the wedge in this sanding block permits a length of fresh sandpaper to be pulled onto the sanding surface. The block consists of two pieces of soft wood of suitable size held together with countersunk bolts. A hole drilled between the clamped blocks provides storage for the end of strips of sandpaper cut and rolled to size to slip into the hole as indicated.

Daniel Bousha, Jackson, Mich.

Magazine Prop



Students and others who like to read while enjoying a cup of coffee and a sandwich will appreciate this easily-made support. Required are 74 in. of aluminum clothesline wire; cut into lengths of 10, 24 and 40 in. The longest piece is shaped into a rectangle $8\frac{1}{2}$ in. high and $9\frac{1}{2}$ in. wide. An ordinary pair of pliers bends the soft wire and makes the loops that lock the rectangle ends together. The back member of the prop is a U-shape about $6\frac{1}{4}$ in. high. The center coupling is shaped from the 10-in. length, with the back loop open just enough to permit slipping it on and off the back member. Disengaging the latter loop permits the rack to be folded flat.

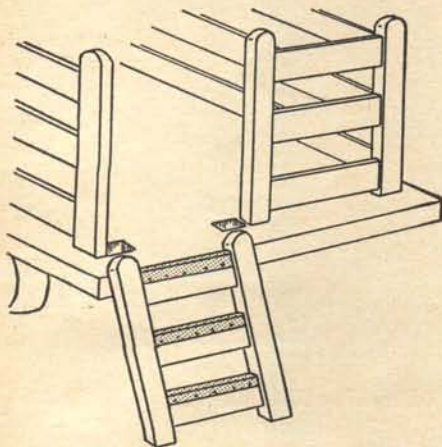
Bil Toman, Palatine, Illinois

Sanding Irregular Contours

When sanding irregular surfaces, crumple the sandpaper and back it up with a wad of putty. Crumpling the paper makes it more flexible and the putty forces it against uneven contours.

John Comstock, Wellsboro, Pa.

Self-Storing Truck Ladder



Rubber strips nailed to the upper edges of the rails of a truck fence will permit using it as a ladder, as indicated. To prevent the ladder from slipping on a smooth surface, nail rubber strips to the lower ends of the vertical members.

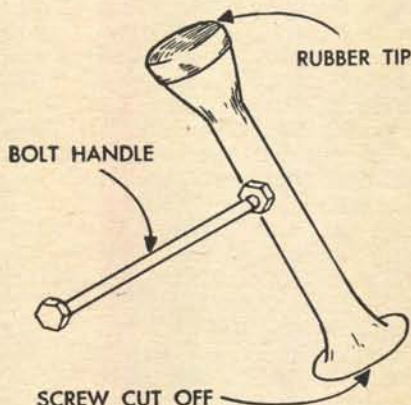
Frank Shore, New York City.

Cleaning Timesaver

Speed up the job of scrubbing a basement or garage floor when using a long-handle scrub brush by tying a garden hose to the handle. Position the hose end so it flows water just ahead of the brush. A light stream is fine for scrubbing, a heavier flow of water is used for rinsing down.

Edward Bentley, Jackson, Mich.

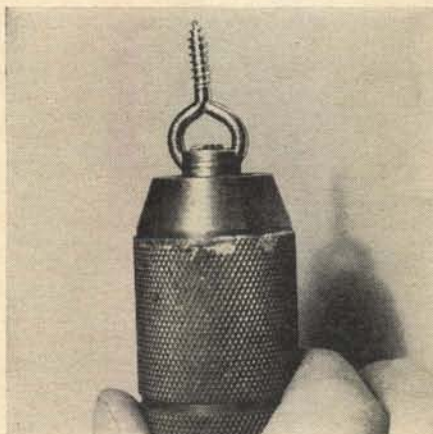
Improvised Hammer



Handy for model work and other light jobs is this hammer improvised from a metal door stop. The screw on the base is cut off and the surface filed flat and a hole is drilled at the mid-point of the shank to accept a bolt that forms a handle. You then have a hammer with a head that is metal one end, rubber the other.

M. Robert Beasley, Detroit, Mich.

Driver For Screw Eyes



Driving or removing screw eyes and hooks is an easy task when a hand brace is used as shown. Simply position a screw eye between the jaws of the chuck and tighten.

William Swallow, Brooklyn, N. Y.

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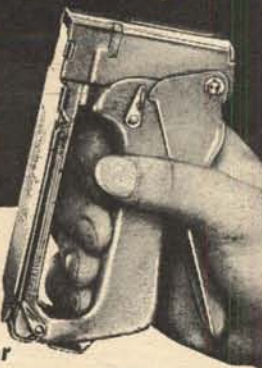
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Manufacturers' Directory

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Silver Ocean, Silver Sea Pools, and Filter Set, Plastics Div., Doughboy Industries, Inc., New Richmond, Wisconsin
Hunter Powers Pool, Hunter Powers Co., 9201 West 143rd St., Orland Park, Ill.
Buster Crabbe Pool, Cascade Pools Corp., Talmadge Rd., Edison, New Jersey
Convert-A-Pool and Vis-A-Pool, Cabana Pools, Inc., 273 Newark, Pompton Turnpike, Pequannock, New Jersey
SwiMaster Pools, Southern National Mfg. Co., Hollister, Mo.
Pool Guide Water Test Sets, LaMotte Chemical Products Co., Chestertown, Maryland
Aluminum Patio Wall, Page 16
Green Diamond Rib Aluminum and Anodized Aluminum Nails, Kaiser Aluminum & Chemical Co., Kaiser Center, 300 Lakeside Drive, Oakland 12, California
Sakrete Concrete Mix, Sakrete, Inc., P. O. Box 1, St. Bernard, Cincinnati 17, Ohio
Kol Mixal Mixer, Kol, Inc., 2323 Ellis Ave., St. Paul 14, Minn.
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Weblite, Weblite, Inc., 24 Jericho Turnpike, Mineola, L. I., New York
Make Your Car Safer, Page 23
Hickok Royal Traveler Auto Seat Belts, American Safety Equipment Corp., Empire State Bldg., 350 Fifth Ave., New York City 1, New York
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Pool Kits, Taylor & Art, Inc. Plastics, 1710 E. 12th St., Oakland 16, Calif.
Little Giant No. 2 Pump, Little Giant Pump Co., 3810 N. Tulsa, Box 7025, Oklahoma City 12, Oklahoma
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Goode Products Co., Dept. DJ, 7542 Maie Ave., Los Angeles, California
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"Surfaset" Hardware, Stanley Hardware, Div. of The Stanley Works, New Britain, Conn.
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Panavise, Colbert Die Cast Co., Inc., 10107 Adella Ave., South Gate, California
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Rapid-Tap, Termite Drills, Inc., 99 N. Lotus Ave., Pasadena, California
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Supershop, Power Tools, Inc., 1930 Yates Ave., Beloit, Wisconsin
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Kit, Tandy Leather Co., 300 Throckmorton, P. O. Box 791, Ft. Worth, Texas
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U-Stain Glass Kits, Immerman and Sons, Inc., 1924 Euclid Ave., Cleveland 15, Ohio
Electric-Powered Tiller, Page 57
Starflyte Tiller, Portable Electric Tool Co., 1200 East State St., Geneva, Ill.
Mortar Mix, Page 57
Sakrete Mortar Mix, Sakrete, Inc., P. O. Box 1, St. Bernard, Cincinnati 17, Ohio
WORKBENCH Research Department, Page 58
Bitucote Sealer, Bitucote Products Co., 1337 S. Kingshighway, St. Louis 10, Mo.
Nu-Drive, Cook Paint & Varnish Co., 1412 Knox, North Kansas City, Mo.

Your Very Own Personalized Note Paper and Matching Envelopes!

PRINTED WITH YOUR
NAME AND ADDRESS
50 Note Sheets ONLY **\$1.00**
25 Envelopes

YOUR NAME
AND ADDRESS

YOUR NAME
AND ADDRESS

\$1.00
per set

SEND ORDER TODAY!

Here is an opportunity to have your very own personalized note paper and matching envelopes. Printed with your name and address on beautiful white ripple stock. It's just the thing for dashing off little notes of thank you, sympathy, get well, congratulations, or simply to say hello. Be sure to send your order early. Simply fill out the coupon below giving us the name and address as you want it to appear on your stationery and also the name and address where it is to be shipped. Specify "personalized" stationery (comes in white only).

SPECIALLY PRICED FOR WORKBENCH READERS!

Fill out the coupon below giving complete information and mail with your remittance.

WORKBENCH
543 Westport Road, Dept. 1098
Kansas City 11, Missouri

Imprint:

Name

Street

City, State

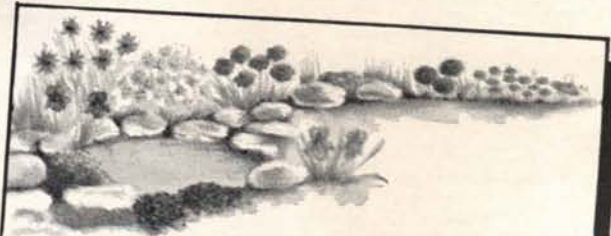
Please print the name you wish imprinted in the above space.
Enclosed, \$ _____ for _____ sets of stationery.
(Send \$1.00 for each set of stationery ordered.)

Ship stationery to:

NAME _____
ADDRESS _____
CITY _____ STATE _____

Wonderful for Gifts!

Order an extra set or two for gifts for close friends. These sets of personalized note paper and envelopes are ideal for gifts. If more space is needed for additional names, attach an extra sheet of paper. Be sure to specify clearly where stationery is to be shipped and names to be printed.



We have a very limited supply of a full color note paper in flower garden design with matching envelopes. On this note paper your name and address will not be printed. If our supply is exhausted before your order is filled, we will send "personalized" stationery unless you request us not to. If you want 25 note sheets and 25 envelopes in full color, specify "color" stationery. Use coupon at left and mail with \$1.00.

NOW! A BRAND NEW EXCITING "BARGAINS"!

Now—Combined with These Publications...

"FOREIGN BARGAINS" — News of Foreign Products — How to import them to your home — includes Home Study Course in Importing and Exporting. Where and How to get imprint catalogs, foreign publications, etc. For newcomers and experienced importers!

"PROFITABLE BUSINESS" — How to start a part time or full time enterprise from your home or office. Ideas and articles on how to make more money — monthly articles covering these subjects.

JUST LIKE GETTING 3 MAGAZINES IN ONE!

BARGAINS!

IMAGINE GETTING BANKRUPT, CLOSEOUT, BUYS SUCH AS THESE!

- \$1 Val. Chlorophyll Tablets, 7 1/2 c pkg.
- 15c Textile dyes, 3 1/2 c pkg.
- \$12.95 Val. Name brand Kitchen set, \$3.25
- \$4.98 Port. Washing Machine, 20c.
- POSTAL SCALES, 7 1/2 c each!
- \$2.98 Horserace game records, 30c ea.
- \$1.95 Ret. Men's silk ties, 12 1/2 c ea.!
- PENCILS, 144 for 57 1/2 c!
- 69c Ret. Insect Repellent, 5c each!
- CHRISTMAS SEALS, 25c per 1000!
- ENVELOPES, 50c per 1000!
- 35c DRESS PATTERNS, 3c each!
- Calendar Wrist Watches, \$5.00 each!
- New Bobby Pins, 70c per 700!
- \$5.50 Ret. Lucite Hairbrushes, 65c ea.!
- \$1.75 Rudolph kids toiletry sets, 35c.
- NEW HAIRNETS, 1/2 c each!
- \$1 Retail Automatic Card Shufflers, 9c each.
- 39c Under Arm Deodorant, 2c jar!
- 25 card asst. Xmas cards, 11c box!
- 50c Everyday greeting cards, 7 1/2 c box!
- Govt. Surplus Typewriters, \$23.
- \$1-\$3 Hard covered books, 20c each!
- 49c Retail Xmas window decorations, 10c per set.
- \$49.95 Ret. 7x50 Binoculars, \$12.95.
- \$15 Ret. Electric Percolators, \$5 ea.!
- New Phono Records, 45 & 78 RPM, 7c each.
- BUTTONS, 144 for 25c.
- CIGARETTE HOLDERS, 1c each.
- \$1 Kiddies Handbags, 3c each.
- \$1 Val. Billfolds, 15c each.
- \$2.50 Val. Wallets, 30c each.
- LADIES APRONS, 6 1/4 c each.
- D. E. Razor Blades, \$1.50 per 1000 blades.
- \$1 Mufflers, Scarfs, 12 1/2 c each.
- Plastic Toy Guns, 2c each.
- 25c Rudolph Reindeer brooches, 2c each.

(Above bargain list merely illustrates type of Bargains usually found in this paper. Lists Naturally change from month to month.)

PLUS HUNDREDS OF OTHER SENSATIONAL BUYS!



It's New!

- "Bargains" is Bigger.
- "Bargains" carries more terrific Bargain offers.
- "Bargains" is loaded with feature articles & materials.
- "Bargains" carries new home study course in foreign importing.
- "Bargains" tells you where - how - when to import exotic items.
- "Bargains" shows you how to MAKE MONEY.
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- "Bargains" is Bigger, Better than ever before.
- SEE TO BELIEVE!

ONLY IN "BARGAINS" WILL YOU FIND Every Month Similar —

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- BELOW WHOLESALE • RARE MONEY MAKING OFFERS • New and Unusual Item Information

ONE issue of this SENSATIONAL Publication can make or save you MORE MONEY than the COST OF THE ENTIRE SUBSCRIPTION! This is the ONLY Big National paper of this type in circulation! You'll be AMAZED, FLABBERGASTED and DELIGHTED at the wonderful listings in every issue!

Toys, Books, Jewelry, Greeting Cards, Cosmetics, Household Merchandise, Appliances, Industrial Materials, Machinery, Tools, etc.

ONLY PAPER OF ITS KIND AVAILABLE!

Search your newsstand high and low. YOU WON'T FIND ANOTHER PAPER ANYWHERE LIKE IT! "Bargains" is available by SUBSCRIPTION ONLY. It's the only paper we know in existence that actually lists Bankrupt, Closeout, Surplus offers every month. Bargains so rare and terrific, you'll blink your eyes in amazement!

MAKE FANTASTIC PROFITS!

BUY CHEAP—SELL CHEAP! That's why thousands of smart salesmen, store owners, jobbers, etc., buy this paper! They know where to buy at CHEAPEST PRICES! NO REASON why YOU can't DO THE SAME! Many articles, features every month show you HOW to sell bargains for big profits—if you don't know how!

Bargains as low as 10c-25c on the \$1!

It's HARD to believe, but IT'S THE TRUTH! Terrific Bargains can save you 40%-80% or more on every dollar you spend!

SAVE Up to \$1000—EARN up to \$3000!

We HONESTLY think it's possible for you to do this within a year's time. For PROOF... see testimonial letters... or better still, PROVE IT FOR YOURSELF BY SUBSCRIBING.

How To Buy! How To Get Ahead!

"BARGAINS" also features pages of interesting articles + features on how to buy wisely; How to add to your income; How to make spare time profits.

Look What Subscribers Are Saying!

Here's What Subscribers say about "Bargains" After Receiving Their first copies!

"... Your book BARGAINS is just wonderful and I am very glad I subscribed to it."—H. K., Port Monmouth, N. J.

"... As a result of answering one of the ads (in Bargains) it has resulted in extra profits of \$40.00 and upwards per month."—J. H., Alabama.

"... I am very pleased with BARGAINS. I have never seen anything like it and am looking forward to my future copies especially the Christmas edition."—Mrs. D. M., Maine.

"... Received my first issue of Bargains and may I say it is a great magazine."—M. H. C., Alabama.

"... I think BARGAINS is the best merchandise publication I have ever seen (And I have seen hundreds)."—S. P. C., Brooklyn, N. Y.

"... Received my 1st copy of BARGAINS the other day and am very pleased, the information you publish may be just the 'shot in the arm' my business needs."—D. S., St. Albans, N.Y.

"... I have found your magazine very helpful."—W. A. P., Ogdensburg, N. Y.

"... I was the recipient of my 1st copy a few days ago. I am completely satisfied with the periodical. I also wish to express my appreciation to you for having made the magazine available to me. I shall be pleased to continue my subscription as long as the magazine is available."—W. S., Wash.

"I have been a subscriber of your 'Bargains' magazine for nearly a year, and very much pleased with it. I wouldn't want to miss a copy of it. So I am sending in the valuable coupon you sent me with \$2.00 in cash. I am so glad to be one of your subscribers."—Mrs. E. L., Richmond, Calif.

PLUS MANY OTHERS!

THE ABOVE LETTERS WERE NOT SOLICITED IN ANY WAY OR MANNER—ALL ARE IN OUR OFFICE FILES! They are the enthusiastic reaction of subscribers after seeing their first copies of BARGAINS!

JUST \$2.00 FOR 12 BIG ISSUES!

"BARGAINS"

Box 591-EZ, Lynn, Mass.

O.K. Here's my \$2.00 for 12 BIG ISSUES. Rush me first copy! Canada \$2.50, Foreign \$3.00.

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Address.....

City.....State.....

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